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A WEEK'S SURGICAL EMERGENCIES AT THE LONDON HOMŒOPATHIC HOSPITAL.*

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MR. PRESIDENT, LADIES AND GENTLEMEN—The title of my paper suggests that even though this is a homœopathic hospital, there is, occasionally, some surgical work done here, yet how often one has heard it said "it's no use your going there, they are homœopaths and do not believe in operating." We have heard of this being said to patients repeatedly even by medical men, and I have personally met members of the orthodox school who were amazed when they learned that we had an operating theatre and ventured to do major operative work.

In the surgical out-patient department it is quite a common thing, after advising an operation, to hear a patient say, "Oh! but I came because I understood that you cured things by medicine and did not operate." What a sad and rude awakening they suffer! And yet, when I look back over the past fourteen years here I can recall many cases which have lived to be thankful, and have blessed us in their own way, for undertaking surgical cases—and for giving them homœopathic treatment too. To the latter, i.e., the homœopathic treatment, I am convinced we owe much of our success, and the patients owe much of their comfort and, in many instances, even their lives. In my opinion, the first case I shall bring before you this evening falls into the latter category.

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* A paper read to the British Homœopathic Society, June 28, 1916.

But the title of my paper suggests something more; it suggests that we not only undertake surgical cases, but that we lay ourselves out, or rather, hold ourselves in readiness for *emergency* surgical cases; and this we do both by night and by day. So long as the House Surgeon can provide a bed we do not turn a deaf ear to the call of a surgical emergency case, no matter by whom sent, homœopath or allopath, and no matter at what time, midday or midnight. But, unfortunately, we often have to refuse these cases because, and only because, our Hospital has its limitations and at times we have not beds sufficient to meet the demand.

This side of the work of the Hospital has grown enormously of recent years. In my days as Resident Medical Officer, i.e., between thirteen and fourteen years ago, it was a comparatively rare thing to call up Mr. Knox Shaw for an emergency case, but now the surgeon who happens to be on call for emergency cases can never count on an undisturbed night with any degree of certainty—unless he happens to know that it is impossible to afford another bed. These cases can and sometimes do occur with such frequency as to make a not inconsiderable burden when added to private and routine hospital work, yet they are faced cheerfully, and often with the certainty that there is no other reward than the "sheer joy of doing good" to a suffering fellow-creature. A few moments ago, I said we accepted these cases "no matter by whom sent, homœopath or allopath"; whereat I can fancy some of my hearers exclaiming: "Do you mean to say then that allopaths send their surgical emergencies to the Homœopathic Hospital?" My reply to that unuttered question is a most emphatic—yes! To me it is and, I think it should be to all of us, a source of considerable satisfaction, and even of gratification, that quite a number of the allopaths in the neighbourhood have learned to appreciate our surgical work so much that they readily send their surgical emergencies here, and that in spite of the fact that on more than one occasion their patient has been discharged well and that without operation, homœopathic treatment and good nursing only having been employed, together with cheerful surroundings.

And now to emergency week: it dates from April 25 and brought me four very interesting cases within the next five days.

Case 1.—The first case is that of T. L., aged 25, carman. He was brought to the London Homœopathic Hospital on the afternoon of Tuesday, April 25, and seen by the house surgeon who at once called me from my out-patient clinic to see "an acute abdomen." On going to the casualty department I found the patient lying on his back with knees drawn up, and obviously in much pain. He gave the following history: During the blizzard of April 11, 1916, he was riding on the step at the back of his father's hansom cab when the vehicle was blown over and as they fell together the cab struck him on the right side of the back. This blow did not hurt him much at the time, but what did hurt him was a cut lip and for this he sought the aid of our late Resident Medical Officer, Dr. Thompson Currie; apart from that he did not complain. A few days later however he began to experience slight pains in his abdomen, these continued and became much worse two days before admission. During these two days he had vomited several times with a trace of blood in the vomit.

Examination.—On examination I found the abdomen distended, very tender to touch, rigid and boardlike; there was dulness on percussion, a fluid thrill and liver dulness was present. The patient complained of great pain especially on the right side of the abdomen; he was anæmic in appearance with a slight degree of jaundice, temperature 102·6° F., pulse 130 and very thin. We admitted him and decided to operate as soon as possible; as the bowels had not acted for two or three days an enema was given, but without result.

Operation.—There was nothing very definite to guide one as to the site of the mischief, but the fact that he had vomited blood and was slightly jaundiced led me to make a mesial longitudinal incision between the sternum and umbilicus, ultimately extending it to the right of the umbilicus. On opening the peritoneum some thin greenish ascitic fluid rushed out (suggesting at once some leakage from the bile passages), and I came upon a fleshy mass which proved to be the inflamed and thickened falciform ligament. On attempting to explore to the right of this I came upon thick dense lymph adhesions matting the intestines together and to the abdominal wall and tending to form loculi which were filled with fluid. On working downwards to the left the adhesions disappeared, but in the opposite direction, i.e., upwards and to the right the converse was the case, the adhesions were thicker and denser, so much so that the hepatic flexure of the colon was firmly bound to the under surface of the liver and posterior wall of abdomen, sharply flexed and rendered absolutely immobile. I broke down all these adhesions, rendered the hepatic flexure as mobile as could be in its inflamed condition, then proceeded to explore the region of the gall bladder and bile ducts. The gall bladder was not at once evident; it was found collapsed, very much thickened and firmly adherent to under surface of liver, and as unlike a normal gall bladder as it could well be: following ~~it downwards~~ and backwards the common duct was brought into view, but from neither of these could any escape of bile be found, even on firm compression. There was no gas in the abdomen, neither was there any fæcal odour; the appendix felt healthy, so having satisfied myself that there was no definite lesion detectable, I closed the incision in three layers, supporting it with a couple of through and through silkworm gut sutures in its lower half. At 9-30 p.m. patient began to perspire very freely and his pulse became very rapid. One pint of normal saline was administered *per rectum*. This did not help much the pulse continued to be rapid, so at 10.30 p.m., pituitrin ½c.c. was given hypodermically with result that pulse fell from 118 to 138; rectal salines were given every four hours, about 30 oz. each time and were retained fairly well. 26th: By 8 a.m. temperature had fallen from 102·6° to 100·8° F. and pulse to 132. He passed a fairly comfortable day, pulse continuing about 132 but regular; salines continued; evening temperature [illegible]·8° F., pulse 132; a rectal washout was administered with good result. 27th: Patient has slept a little during night; vomited bile twice; returned the 3 a.m. saline with stool; perspired freely; morning temperature 100·4° F., pulse 116, complained of sickness all day; evening temperature 100·4° F., pulse down to 106. 28th: Had several good sleeps in night; morning temperature 100° F., pulse 110, feels better; complained of abdominal pain and breathing troublesome during day but no vomiting; has taken small feeds; rather thirsty; evening temperature 102° F., pulse 120. 29th: In the night patient became very restless, pulse ran up to 148 and temperature 103·6° F., complained of abdominal pain and tightness: house surgeon gave hypo. of strych. $\frac{1}{30}$ at midnight. At 1-15 a.m. Dr. Currie was called, he prescribed crotalus 6 and brandy ½ dr. two hourly. At 4 a.m. patient seemed much worse and somewhat delirious, so night sister called me up on the 'phone and detailed the prominent symptoms, whereupon I prescribed arsen. 30 at one hour intervals: by 8 a.m. temperature had fallen to 101·8° F., but pulse remained rapid (144), patient passed a quiet day, no vomiting after 1 a.m., felt rather > in evening by which time temperature had fallen to 96·6° F., and pulse to 112; put on small feeds again; stopped arsen. 30 at 5 p.m. 30th: This morning felt dressings moist; on examination they were found saturated with bright orange-yellow fluid. I was called and on examination found that incision had burst open at upper and lower ends and bright orange-yellow bile poured out on applying pressure on abdomen. I expressed as much as possible then inserted a ¼ in. rubber tube about 4 in. long into lower opening: patient somewhat icteric.

From that date onward bile flowed more or less freely and the temperature varied somewhat, but was always rather high, though patient felt better in himself until May 19. He was put out on the balcony on a couch on 17th and 18th; on the 19th coughed a great deal with free expectoration. Chest examined but nothing much found; Antim. tart. 30, three doses prescribed by one of [illegible] physicians. At 2 a.m. on 21st the sister rang me up complaining that patient was very restless, thirsty, and had hard spasmodic cough and seemed very ill. I again prescribed arsen. 30, with some improvement. On the 22nd Dr. Wheeler examined and prescribed elaps 6, three hourly. Sputum examined and found to contain pneumococci, M. catarrhalis and numbers of Gram negative coliform bacilli, which were thought to be Bacillus influenzæ. Under elaps temperature tended to come down, though still very unsteady. On 25th patient was very much better, though cough still troublesome at night. He went on gradually improving until May 29 or 30, when discharge ceased, then temperature gradually rose until on June 1 it reached 103·2° F. Then a discharge burst forth again and the temperature fell to 98·4° F. next morning. It rose a little again that evening, but tended to get nearer the normal until June 6 and 7, when discharge ceased again; again temperature rose suddenly next day, this time to 104·2° F. The discharge burst forth again, and next morning temperature 99° F. This has occurred once or twice since, but with less marked rises of temperature and smaller collections of fluid until discharge finally ceased a day or two ago. He still has a small sinus, but in himself he is feeling wonderfully better and his colour has improved very much also. The abdomen has lost its rotundity and is quite supple, nothing apparently remaining of the old ascites or peritonitis; and there is every reason to believe that ere long he will be able to re-establish himself as a useful factor in the nation's economy.

Apart from the almost nightly telephonic disturbances already mentioned my emergency week passed quietly from April 25 until the morning of the 29th, when, having duly planned out and commenced my day's work, the telephone bell rang, and I was asked to come up to Hospital to see one of Dr. Weir's patients who was extremely ill and in need of surgical relief.

The following is a brief *résumé* of a long history of the case:—

Case 2.—M. D., female, aged 57, admitted February 22, 1916, with a very distended abdomen which suggested a pregnancy, but it was hyperresonant. She had dulness of both bases of lungs, with absence of respiratory murmurs at extreme bases.

Dr. Neatby was asked to see her on March 15, because of the abdominal condition, but could not examine properly because of rigidity. On 17th he examined under anæsthesia and found a softish irregular mass in Douglas' pouch, more marked on right side, which he thought was probably tubercular disease of tubes and ovary and advised exploratory operation.

Eleven days later I saw her and advised operation for tubercular peritonitis. Then Mr. Wright saw her, made same diagnosis, but thought operation useless because no free fluid present. On 31st Dr. Neatby saw patient again, and did an emergency operation next day. On making his incision he found abdominal contents all so matted together that it was impossible to recognize the different structures. The right Fallopian tube was eventually isolated from the rest, found diseased and distended, so he removed it. After that the temperature came down nicely and patient seemed to do well for a time, but vomiting never really stopped. Vomit was green in character. Patient was kept on the balcony. About April 21 temperature began to rise and swing more. On 28th, evening, patient complained of pain and distension; she was restless and in great pain. On the morning of the 29th Dr. Weir came and saw her and immediately 'phoned me. I came up at once and found the skin of the abdomen very ecchymosed; patient extremely emaciated; abdomen very distended and the scar of Dr. Neatby's incision bulging up like a cone and almost bursting. The theatre was got ready and I operated as soon as possible. On incising the most prominent part fœtid gas rushed out and the lower abdomen collapsed like a torn balloon. I inserted my finger, but could only feel a large cavity with firm walls, which were covered with nodules It was impossible to detect anything having any semblance of ordinary viscera. The cavity evidently contained fæcal matter, so I doutched it out with merc. biniod, solution $\frac{1}{4000}$, washing out bits of apple peel, &c. On inspection I then found oozing taking place from the upper wall of the cavity in what should have been the cæcal region. A large drainage tube was inserted and patient put back to bed on the balcony, with instructions that she be fed up and the cavity washed out twice daily. On pressing over the left side of the abdomen during the washing out the ecchymoses coalesced into one large black patch.

The subsequent history so far as is recorded is as follows:—

May 3.—Much same condition; temperature and pulse down; vomits green bile and sometimes her food; plenty of fæces in washout, and also formed fæces per rectum. Punched out ulcers on tongue to-day. 8th: Has been rallying a little and asking for extraordinary foods—onions, mackerel, thick soups, bacon, pudding, &c. (this after being almost unable to take anything). Hyperasthenia very marked. 14: Gradually dying; even more emaciated and more discoloured; no attempt at healing. Discharges from wound extremely offensive. 15: Died to-day.

16th: *Post mortem.*—"Body extremely emaciated and covered with ecchymoses. Sides of abdominal wound gangrenous; perforation of small intestine apparently. Abdominal contents so matted that it was impossible to identify appendix; mysenteric glands enlarged. Food, fæces, and green pus in abdomen."

CASE 3.—Between 2 and 3 p.m. on the day of operation on the previous case, I was called to see a patient in the Imperial Hotel. A local practitioner had been in attendance and had written as follows: "I certify that J. C., should be removed to hospital. He complains of great abdominal pain. I have drawn off a large quantity of urine with a good quantity of blood—may be a rupture—and he should be under a surgeon at once for observation: I have given him ¼ gr. morphia.

(Signed) QUINTON CHALMERS, M.D."

I found the patient lying on the bed clothed in his day nether garments and a pyjama jacket; in a profuse sweat but with cold skin. He complained of some pain in the abdomen—though less than it had been—and inability to pass urine; the abdomen was distended, tympanitic, and tender on palpation. No vomiting; bowels open naturally previous day. I then obtained the following history:—

History.—Patient was a commercial traveller from the north, and whilst in town on business the previous afternoon, met some boon companions, and yielded to the temptation of several drinks, with the result that on returning to his hotel about 5 p.m., he was decidedly unsteady. A little later in the evening on entering his room one of the porters found him lying on the floor with a black eye and bleeding from the eyelid, having apparently fallen against the corner of the washstand; he was assisted to bed; a doctor was sent for, the eye was attended to and patient was left for the night.

He awoke about midnight in great pain, endeavoured to get up to micturate but the pain was so intense that he could not get further than the edge of the bed where he sat in excrutiating pain until the chambermaid came to call him next morning. The doctor was again sent for, found him still in great pain with abdomen distended. He had not passed urine since the previous afternoon so the doctor catheterized him, with the result recorded in his certificate (vide supra). This gave the patient a little relief, but by 2 p.m. the pain was as bad as ever. Doctor was again sent for and again catheterized with similar result; he then gave him ½ gr. morphia and gave the certificate already read. I had the patient removed as speedily as possible to the London Homœopathic Hospital. On admission his temperature was 99° F.; pulse 118; respirations 30, wheezy; and he complained of severe abdominal pain on coughing. Examination per rectum nil, except that it caused much pain. I ordered hot fomentations to abdomen four hourly after painting with glycerine of belladonna; bell. and merc. corr. were given alternately internally.

I saw him later in the evening; he was in much the same condition still sweating profusely; at times clammy; he had vomited a little brownish fluid. I catheterized and withdrew 10 oz. blood stained urine; I ordered turpentine stupes as he was still in much pain. At first these seemed to ease him and he seemed inclined to dose. 30th: Next morning temperature was 101° F.; pulse 136; respirations 42; breath offensive; still in much pain; groaning; very pale and sweating. I saw him at 7-30 a.m., and decided to operate but the anæsthetist hesitated on account of the breathing. I then got Dr. Wheeler to come and examine him. He declined to take the responsibility of sanctioning an anæsthetic so the operation was deferred. Arsen. 30 gtt. iij. every hour ordered. Catheterized and withdrew 10 oz. urine still discoloured with blood. During the day pulse was very variable; he perspired profusely and at times was very cold and clammy; breathing easier when sitting upright.

As there was no improvement by 3 p.m., I ordered phosphorus 30 to be given every hour. Shortly after the first dose he slept an hour or so and woke with pulse much improved, then vomited about 5 oz. or 6 oz. greenish fluid, without any nausea. At 7 p.m. I saw him again, he seemed rather worse, had vomited a large quantity of greenish fluid and had some retching causing great pain in lower abdomen. I drew off 5 oz. urine by catheter. He was very thirsty. Temperature 98·4° F.; pulse 140; respiration 40. May 1: In spite of all that was done to ward off death the patient gradually sank and passed away at 7-40 p.m., shortly before his wife arrived. The cold and profuse perspiration persisted. Temperature never went above 99° F., but the pulse varied considerably between 100 and 140, and respirations 30 to 42. The abdominal pain also persisted, being at times very acute.

Post-mortem.—A post-mortem examination was made with the following results. *Both lungs* showed general congestion; the left apex exhibited several healed tubercular cicatrices.

Abdominal Cavity.—Contained bloody fluid. Great omentum was adherent to anterior abdominal wall; stomach and intestines and appendix normal; some pericolic-membrane present on and to the outer side of ascending colon; liver normal.

Bladder.—Showed a vertical tear fully three inches in length in upper and posterior wall. A small calculus was found in neighbourhood of left ureter.

CASE 4.—When I came up at 7 p m. on April 30 to see the patient whose case I have just narrated I found the house surgeon busy with three casualties and as they were mainly head injuries (all from the same cause) he requested me to see them. One had a slight hæmatoma of scalp and bruised leg, without symptoms; another had slight hæmatoma over occipital region with vomiting; and the third had a depressed fracture on right side of skull. As we had only one bed available I decided to admit the third patient and sent the others home with instructions that the second patient was to be carefully watched and if he should become unconscious or fall into a deep sleep with stertorous breathing a doctor should be called in.

CASE 5.—H. B, aged 12. Admitted as just stated on April 30, with depressed fracture on right side of skull.

History.—Whilst playing with two other boys against two insecurely fastened folding doors which opened sheer into the deep basement of a new factory, the three fell some 10 or 12 ft. alighting on some timbers and sustained injuries as enumerated above.

Examination on Admission.—Patient complains of some pain on right side of skull where is a long depressed fracture running antero-posteriorly in right parietal region. There is already much extravasation of blood; the patient is somewhat drowsy but otherwise no symptoms or signs. Pupils equal, breathing normal, and no discharge from either ears or nose.

Next day he was seen by a colleague who expressed the opinion that there was no fracture, and that what we thought was the margin of the depression was only the hard margin of the hæmatoma. As there was still an absence of symptoms and the patient seemed quite well I adopted the attitude of "wait and see."

May 5: Much of hæmatoma absorbed; fracture can now be felt distinctly: very slight internal strabismus of left eye but I think it an old condition. Patient seems quite normal. 9th: As the bruising of the tissues over the fracture has now practically passed away, I decided to operate. Accordingly on the 10th I turned down a flap with a 3 in. base over right ear and disclosed an antero-posterior fracture 4 in. long in right parietal bone with another fracture branching from it downwards towards right ear; the greatest depression was immediately posterior to the junction of these two cracks so I trephined immediately above that point using a ½ in. trephine and with an elevator endeavoured to lever the parts into their normal position as far as possible; I then replaced and satured the pericranium and scalp flap separately with chromic catgut. The wound healed perfectly by first intention. Throughout his stay in Hospital the patient never was ill. Even after the operation he felt so little discomfort that he clamoured for his dinner as soon as he came out of the anæsthetic.—*The British Homœopathic Journal*, October, 1916.

EDITOR'S NOTES.

Homœopathic Verifications from the Laboratories.*

By W. H. WATTERS, M. D., Boston.

Dr. Hanks has done me the honor to request me to prepare a symposium upon homœopathy as viewed from the laboratory. This honor is deeply appreciated. In response to the invitation, I have been so fortunate as to secure the co-operation of some of our best laboratory experts. Each has been asked in substance this question:—Has your laboratory work or that of others influenced in any way your belief in homœopathy?

The doctor has further requested me to first answer my own question, despite my assertion that I had already done so at a previous meeting of the Institute. This is my excuse for the otherwise apparent egotism of such a repetition.

Have the results of laboratory investigation during the past sixteen years altered my opinion of homœopathy? Yes, most certainly. How? To explain this requires some personalities. Born the son of a physician who was a graduate of a non-homœopathic college, but who later became a homœopath by conviction, my education was obtained in a university where both by tradition and practice homœopathy was taboo. Later, a course in an homœopathic university with all possible time devoted to laboratory work left me at graduation an honest skeptic concerning remedial medication. During the intervening sixteen years many new discoveries have occurred bearing upon the explanation of the curative action of various agents. These discoveries, and they have been not a few, have changed the sincere doubt or question of years ago into a distinct belief that the phrase *similia similibus curentur* expresses a great truth, one of much wider application than was recognized by its first prominent adherent, Samuel Hahnemann.

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* Read before the Bureau of Homœopathy, A. I. H., at Baltimore, June 27, 1916. Published also in the *Journal of the American Institute of Homœopathy*, October, 1916.

This opinion has been reached purely by laboratory and allied study and is entirely independent of the results from clinical practice, a department with which I have practically nothing to do. May I explain my reasons for this opinion by asking you to ascertain with me how far our peculiar homœopathic tenets are capable of absolute laboratory demonstration. As I stated before, these tenets in brief are:

The single remedy
The proving of drugs
The size of the dose
The frequency of repetition
The law of cure.

The single remedy. Modern physicians are practically ignorant of the polypharmacy that was so universal in the time of Hahnemann. Ten, fifteen or more drugs were compounded in the most nauseous messes and given for the most fantastic conditions. No one could foresee their effect upon the well, much less upon the sick. Modern laboratory study shows definitely that while we may ascertain the effects of a series of drugs taken singly into the body, no one can foretell what the effect will be when those drugs are mixed. That effect may be a combination of them all in various degrees, or it may be something entirely new and unexpected. It certainly cannot be relied upon or forecast. Adherents of all schools or divisions of medicine are wisely placing emphasis upon the value of the single remedy. And this has undoubtedly been largely brought about by homœopathy.

The proving of drugs. In this department of medicine our school has been a pioneer. Study of the effect of drugs upon the sick has, of course, been universally followed, but beyond reports of occasional poisoning the deliberate observation of drug effects upon the healthy human being has been notable by its absence in non-homœopathic circles. In the eager pursuit of drug proving, it has happened that not a few observers in their over-enthusiasm have recorded results not at all due to drug action with some resultant confusion, but this in no way vitiates the vital principle. At present, the importance of drug study is recognized by all schools and is being more and more followed. I can imagine nothing more strictly scientific than was the monumental proving of belladonna conducted by Dr. Bellows some years ago, with results familiar to you all. Such work commands the respect of all honest truth seekers, however much they may decry or disdain some of our early so-called "provings" made by sincere but idealistic or over-enthusiastic physicians.

The size of the dose. No one of our peculiar tenets has been so universally accepted as has this formerly much ridiculed one. Probably the majority of you have used an average dose of from the second to the sixth decimal dilution. You older members have been repeatedly told by your so-called "regular" friends that a sixth dilution could not contain sufficient medicine to in any way influence one's physical being. Now, these same friends are using these same attenuated doses and not infrequently find even these too great. The introduction of vaccine therapy and Wright's study of the opsonic index have abundantly demonstrated the efficiency of the minute dose beyond any possibility of dispute. Not long ago a very eminent member of the dominant school in Philadelphia took all of us immunologists to task for using too great doses of tuberculin in tuberculosis. We use as routine amounts representing about the 7x or 8x dilution while he advised not more than the 10x or 11x.

The frequency of repetition. This is no longer a debatable ground, thanks to the work of the past decade. All now agree that the ideal way of aiding nature is not to see how much of a remedial agent she can stand at oft repeated intervals, but to endeavor to ascertain how best to stimulate her recuperative powers by minute amounts administered at infrequent intervals. Once a week is a very common interval between treatments in these days of immunization.

The law of cure. Upon the phrase *similia similibus curentur* homœopathy is to stand or fall. The other tenets valuable though they may be are merely subsidiary ones. Should likes really be treated by likes and if so, why should they? Fifteen years ago this question could not be definitely answered, but since then much light has been thrown upon it. Without taking too much time with detail, allow me to cite some actual facts capable of abundant demonstration.

Tuberculosis is a disease with which we are all familiar. We say it is caused by the bacillus tuberculosis, but really mean that the symptoms are due to the poisoning of the body by the toxins produced by those bacilli. Let us obtain some of the toxin by laboratory methods, altering it slightly perhaps, and repeatedly introduce it into a healthy animal. Constitutional symptoms will follow, symptoms identical to those due to the continual absorption of the toxin from an actual active focus, and if sufficiently long continued the animal will die of a true toxemia. Now, let us take an actually infected animal or group of animals, and give to them under proper conditions and at appropriate intervals suitable amounts of tuberculin. What is the result? Instead of progressive decadence to fatal results, a gradual improvement to complete convalescence will follow. If this is not an illustration of "*likes cure likes*," I do not know what can be. The same may be said of many other infectious conditions. Let us study these a little more carefully. We find that the degree of resistance in an animal or a person is below normal when thus infected. If the toxemia is too great this deficiency progresses to fatal results. If less severe, nature reacts and the degree of resistance becomes so great as to finally overcome the malady, and we call the individual convalescent. Taking these same toxic substances and applying them to the healthy we can at will increase or decrease the degree of resistance dependent entirely upon the size of the dose. Yes, you say, but the case is not truly analogous to homœopathy. Personally I believe it to be entirely so. These toxins, what are they but drugs? We use extracts of the higher members of the vegetable kingdom and call them drugs. Why not others from the lower orders? Truly, they are usually administered hypodermically but this should make no difference, and in fact some of our men use them by mouth. Let us leave these products thus briefly considered and ask if the same phenomena have ever been noted following the use of distinctly homœopathic preparations. The answer again is "Yes." From London, from Ann Arbor, and from Boston have come reports of just such results obtained by laboratory investigation. Phosphorus, echinacea, hepar sulphur, baptisia, mercury and other drugs have been definitely demonstrated to have in certain instances at least definite immunizing forces. Time forbids their detailed mention here. Increased resistance to tuberculosis and to staphylococcus infection has been definitely produced by specific antibody formation while other antibodies have been demonstrated that produce agglutination or hemolysis entirely as a result of drug activity.

How much further this may go on no one can at present foresee. Suffice it to say that in numerous instances the law of similars has been abundantly demonstrated. A still more significant fact will be found when it is noted that during the entire period of new discoveries nothing has been brought forward that disproves or contradicts this same law.

At the present time the efforts of a large part of the medical world are directed toward the production of immunity. The explanation of artificial immunization is entirely included in the law of similars if we read it, *Let likes be treated by likes.* We immunize against typhoid by administering a substance similar to that which in different dosage would produce the disease. The same can be said of anthrax, of staphylococcus infection, of streptococcus lesions and many others.

We similarly immunize against some particular headache or other series of clinical conditions by administering a substance capable of producing similar conditions. One we call vaccine therapy; the other, homœopathy. Wherein lies the difference? We believe there is none in the essential underlying law. Immunity is the name of the goal striven for; homœopathy the name of the road to that goal.—*The New England Medical Gazette,* October, 1916.

Food Control.

The decision of the Board of Trade, announced by Mr. Runciman on November 15th, to appoint a Food Controller, has naturally excited a great deal of public interest, and more has been read into the announcement than it actually contained. The Orders so far as made by the Board of Trade under the Defence of the Realm Regulations apply to milk, flour, and potatoes. The price of milk must not be raised above that paid at November 15th, 1916, and the price may not exceed by more than a specified amount—in the case of retail milk 2*d.* a quart—the price in the corresponding month before the war. The order as to potatoes requires a return of potato stocks. The order which will have most effect in its influence on our daily diet is that which deals with flour. It affords an instance of how an agitation, unsuccessful in peace time, may succeed in its object under the stress of war conditions. The severe restriction of the hours during which alcoholic liquors may be sold, and the introduction of "summer time," or daylight saving, as it has been called, are other examples. The regulation prohibits for the future the production of any flour except such as would have been called a few years ago, when there was a considerable agitation for its adoption, "standard flour."

The relative advantages and disadvantages of the grinding of of wheat so as to produce a flour containing a larger proportion of germ and bran than the ordinary white flour have been somewhat fully discussed in our columns. The prevalent method, in consequence of the preference of the public for a very white flour and very white bread, has been to grind the wheat and separate the product into a succession of fractions, the principal fraction, white flour, forming about 70 per cent. of the grain. By arranging the milling in such a way that 80 per cent. instead of 70 is collected in one fraction, the amount of protein in the flour is substantially increased, and it has been claimed that the product is increased, in nutritive value not only by the enhanced amount of protein, but by the retention in it of a larger proportion of the vitamines of the embryo. Mr. Runciman appears to have been impressed by this view of the matter as well as by the advantage of getting an additional yield. He stated in the House of Commons that the Government had decided that 70 per cent. flour cannot now be permitted in this country. "Pure white flour," he said, "from which has been abstracted, as some people think, some of its most valuable qualities, will not be milled in future. We shall retain in the flour a good deal of what I believe in some quarters is called offal and in others precious food." He went on to state that the percentage of wheat which should be converted into flour varied with different kinds of wheat, and that a scale of percentages would be laid down which would, on an average, raise the yield of flour about 8½ per cent. The milling order which has since been published gives the percentage of flour that must be extracted from wheat as varying from 73 to 78 per cent. according to the variety, the highest figure being that for Australian wheat; the average figure is 75 per cent., which is still well below the 80 per cent. which was the percentage adopted for giving "standard flour." Even the additional 5 per cent., however, represents a large increase in the amount of flour obtained from every sack of wheat. The palatability of the resulting bread will continue to depend chiefly on a judicious blending of flours and on good backing.

While there may still be some difference of opinion as to the extent of the advantage secured, there will probably be no difference of opinion in the medical profession on the point that it will, in the existing circumstances of the food market, be considerable, even part from the fact that a given amount of wheat will yield a much larger proportion of bread than before. In this case, as in the case "summer time" and other innovations, it will be interesting to see whether the general experience obtained will lead to the retention after the end of the war of what has been adopted as a temporary measure.—*The British Medical Journal,* November 25, 1916.

Gelatin as a Nutrient.

Recent bio-chemical researches show that under certain conditions gelatin can replace the proteins for the purposes of nutrition. It was formerly held that gelatin was not capable of building tissues, and that in no sense could it be regarded as a true substitute for proteins. In a very interesting series of experiments conducted in the bio-chemical laboratory at Cambridge by Ginsaburo Totani, and reported in the October number of the *Bio-Chemical Journal,* some evidence is offered that the addition of the amino-acid tryptophane alone to the hydrolysis products obtained from pure gelatin made these efficient in maintaining the nutrition of animals. The addition of tyrosine did not give the same decided effect as tryptophane. The results, however, refer to the use of hydrolysed gelatin, for when intact gelatin was used, it was badly digested and absorbed, which explains the failure to obtain good results upon the addition of the missing aminoacids in previous experiments. With the addition of tryptophane to hydrolysed gelatin in the cases of four rats experimented upon, two were not only able to maintain their weight but also exhibited some growth. The general condition of these animals also remained satisfactory. The condition of the other two rats of this set was also, for a long time, much better than that of rats receiving no tryptophane. It is concluded, therefore, that rats can maintain themselves upon the hydrolysed products of gelatin when tryptophane alone is added. The amino-acids are rapidly assuming great importance in the problems of nutrition and their differentiation as to the individuals which help and which do not help assimilation is very remarkable.—*The Lancet,* November 18, 1916.

Salt in the Dietary.

The decision contained in an Army Order issued recently to reduce the ration of salt from half an ounce to a quarter of an ounce brings to the front the whole question of the role of salt in the dietary. The order undoubtedly allows for the actual daily requirements of the body, since this has been calculated to be not more than an intake of 2 grammes, while a quarter of an ounce amounts to a little over 7 grammes. Few of us are concerned to think that by taking salt with food we are keeping up a saline equilibrium; we only value it for its salinity and in practice as a condiment, and its dietetic importance probably rests on the fact that it makes so many foods palatable. The foods which furnish salt are generally the animal foods, for sodium chloride forms a comparatively small percentage of the salts present in the cereals, tubers, and pulses. These contain chiefly potassium salts. Few foods, however, possess a natural salinity of their own; the oyster may be mentioned as an exception. The daily food ingested provides sufficient sodium salts for the body needs, yet such food is not salt to the taste, and this consideration would seem to confine added salt to the category of a condiment. Its action as a condiment deserves, however, further study, because the development of flavour which the addition of salt induces is undoubtedly due to increased osmotic action. In other words, the addition of salt conspires to produce an isotonic fluid with more rapid travelling activities, stimulating salivary flow and subsequently the secretion of the gastric fluid. The evidence, therefore, is in favour of the use of salt, not because there is a shortage of this in a mixed diet, but because it increases the palatability of food and likely enough its absorption value. The Army Order allowance seems small, particularly if the ration should include a preponderance of unsalted vegetable ingredients, but; on the whole, salt is extravagantly and wastefully employed.—*The Lancet*, November 11, 1916.

The Clergy as Health Missionaries.

The "failure of the Churches" is a favourite text of the Jeremiahs who fill the newspapers with lamentations over the general rottenness of things in these evil days. It is scarcely within our province to discuss the question whether Christianity has failed, as many in their haste declare, but, assuming that there is some ground for complaint of the inefficiency of the churches, we may be allowed to point out that one possible cause is the want of interest in health problems displayed by minister of religion as a body. This is admitted by leading men in the Church,. The other day Canon Carnegie, Chaplain to the House of Commons, speaking of his own experiences in Birmingham, told an interviewer that so far as the Church's teaching deals with conduct it has tended to limit its view to the personal and domestic virtues, and to leave out of account the larger social duties and responsible. As an organized social power, he said, the Church is strangely ineffective. The clergy know that within the areas in which their churches were situated the drink evil was rampant, and that in many of them slum dwellings existed unfit for the habitation of brute beasts. But they also knew that so far from being the head centres of the movement for social amelioration, they were hardly taken into account by those interested in that movement. We welcome as another sign of awakening to the importance of the matter a resolution adopted on October 20th by the Manchester Diocesan Conference calling on all churchmen in the diocese to interest themselves effectively in the improvement of housing conditions. We hope this example will be widely followed by other ecclesiastical bodies, and that the good resolutions will be translated into effective corporate action. The dirt and squalor so painfully in evidence in countries where the priesthood holds sway over the minds of the people are in large measure due to the intensity of a faith which makes them feel the futility of things that merely concern a brief life on earth. This indifference is one of the "notes" of the theological mind, and tends to put it out of sympathy with the medical profession, whose aim is the prevention of disease and the increase of physical well being. It is, perhaps, not too much to say that the clergyman is often a little suspicious, if not actually jealous, of the influence of the doctor, who has not yet wholly outlived the effect of the mediaeval libel, *Ubi tres medici, duo athei.* But although it may be admitted that, like Chaucer's physician. the modern mediciner's "studie is litel on the Bible," we hold that in the highest sense of the word—the sense which teaches that

He prayeth well who loveth well
Both man and bird and beast—

the doctor is by his profession the most religious of men. The attitude of the clergy is unfortunate, as they might be most powerful allies of the medical profession. They would be more disposed to help if they realized that war against disease is to a large extent war against sin. As Johnson said, every man is a rascal when he is sick, meaning that a bad condititiou of body breeds an unholy and malevolent state of mind. Sydney Smith studied medicine, as he felt that such knowledge would increase his usefulness as a parson; and his experience led him to say that the longer he lived the more convinced he became that the doctor is of more importance than Seneca. We wish that all of his cloth were equally enlightened. If the clergy take so small a part in the campaign for the sanitary betterment of the people, this is, to some extent at least, due to their ignorance of the aims and methods of sanitarians. Instruction in hygiene should, therefore, be an integral part of the training given in theological colleges. Clergymen need not be expert in sanitary science, but they should understand its principles and the main facts concerning the conservation of the health of the community and the individual. We are sure this would make their ministry more fruitful in every way. Efforts to arouse in them as a body an active interest in the subject have from time to time been made, but the results have, on the whole, been disappointing. In 1892 the Lower House of Convocation of the Province of York unanimously passed resolutions calling for some definite action by the Church in view of the dangers to health and morality caused by insanitary houses and overcrowding. The resolutions found little support in the Upper House, but the Archbishop promised to consider the matter. Nothing, however, seems to have come of his consideration. In 1887 the very step we now urge on the churches in this country was taken in Portugal. Cardinal Americo, Bishop of Oporto, founded at his own expense a chair of hygiene in his diocesan seminary of Carballos. He enacted that no candidate for holy orders should be ordained priest without giving proof of a knowledge of the principles of hygiene. This brought a good deal of adverse comment on the head of the enlightened prelate; and, as far as we are aware, he found no imitators among his episcopal brethren in Portugal or elsewhere. This suspicion of medicine among the modern clergy is all the more remarkable in view of the importance assigned by Moses to sanitation, and by the attitude of the early apologists for Christianity. Tertullian and Clement of Alexandria are full of medical illustrations, and others of the Fathers show a clear understanding of the value of hygiene.—*The British Medical Journal*, October 28, 1916.

The cost of drugs in Germany.

Professor H. Fuhner,* Director of the Pharmacological Institute of the University of Konigsberg, has attempted to show that Germany is paying less for her drugs than England, even in the case of drugs which Germany has to import. Thus, balsam of Peru and quinine were in April, 1916, cheaper in Germany than in England, the cost for the former being 54 marks a kilogram in England and 42 marks in Germany. The difference in the case of quinine was still greater, the figures for England and Germany being 180 and 94 marks respectively. Up to 1916 the price of chloroform and ether, of the grade required for anæsthetics, remained at the pre-war level; and, thanks to the maintenance of the communications between Germany and

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* *Deut. med. Woch., June 22nd, 1916.*

Turkey, opium in April, 1916, cost 60 marks a kilogram in Germany, whereas in England it cost 82. The comparative figures for aceto-salicylic acid in England and Germany, were 177 and 7·2. Although iodine was mainly an imported drug, its price was no higher than before, and the same was true of potassium iodide. There was, however, an embarassing shortage of all fats, and the cod-liver oil of Norway and the lard of North America showed a great rise in price. Paraffin and vaseline were four times as costly as before, and no cheap base for ointments was procurable. The lack of cotton-wool was embarrassing. But, in spite of the shortage and costliness of many drugs, Professor Fuhner emphatically opposed the suggestion that drugless days should, as had been suggested, be established in Germany. In calculating the above prices, Professor Fuhner has, no doubt, taken into account the relative depreciation in value which the German mark has suffered compared with the English shilling. It may be noted that the prices of many of the drugs mentioned in the article have fallen very considerably in the English market since April last, this being especially the case with drugs formerly manufactured exclusively in Germany. For instance, the price of aceto-salicylic acid has fallen to about one-half and of salicylic acid to one-third during the last six months.—*The British Medical Journal*, November 18, 1916.

Sterilization and Suture.

Dr. Depage is one of the latest converts to the principle of the secondary closure of war wounds after cleansing, excision, and disinfection by a hypochlorite solution, which is now so extensively used in British military hospital in France. He studied the method at the hospital at Compiègne, of which Dr. Carrel is the chief surgeon, and in a communication to the Société de Chirurgie de Paris* he enlarges upon the importance of controlling the method by bacteriological observations made by taking a smear from the wound every other day, and counting the number of microbes in a field. Depage's observations were made at the hospital at La Panne, and the bateriological work has been done by Dr. Govaerts, who finds that during the first six days after the wound the exudation consists chiefly of polynuclear cells, and contains an enormous number of microbes. About the sixth day the polynuclears begin to disappear, their place being taken by mononuclear cells, and the microbes diminish. After the tenth day macrophage cells appear, and the few microbes to be seen are all of them included in the phagocytes. The appearance of the macrophages, therefore, is the sign that the wound is approaching the condition of asepsis. Charts are kept of the number of microbes, as in the British military hospitals; smears of the exudate when the patient is first admitted show in the majority of cases no microbes, the wounds being covered with blood, which is always aseptic. On the second or third day the number of microbes rapidly increases, reaching as many as one hundred, and even one thousand microbes in a field. It remains at this high level for some days, and then begins to fluctuate, with a general downward tendency. Wounds of the soft tissues were found to become practically sterile at the end of six days. In anfractuous and badly contaminated wounds this condition of practical asepsis is attained later, and in cases of compound facture the period may extend to a month. If any sequestrum is present, it must be removed before practical asepsis can be attained. If the use of the hypochlorite solution is discontinued, the wound quickly becomes infected again. Depage, therefore, distinguishes three periods: The first that of acute infection, when the microbes are very numerous and virulent. Suture at this period is always unsuccessful, and may be followed by serious complications. The second period is one of attenuated infection; the microbes are less numerous and less virulent. Suture at this time only rarely succeeds, and may be followed by a return of the acute infection. In the third period the wound is aseptic, or so nearly aseptic that it may be sutured, but Depage advises that, in the case of bone lesions, it is prudent to wait for two or three negative results. He reports the results in 137 wounds closed on this principle by suture. In 112 the success was complete; in 23 it was partial, but in many of them there was no more than a failure of a few stitches to hold owing to skin tension or to slight suppuration. In such cases rapid healing was obtained by the use of a hypochlorite liquid (Dakin's). Two cases failed, and in both the failure was due to the tension of the skin being too great. In closing the wound Depage does not, as a rule, remove granulations, but brings the skin over them. In some cases he has found it necessary to loosen the skin and slide it forward, and in others to transplaint. *The British Medical Journal*, October 28, 1916.

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* Bulletin XLII, No. 30, August 29th, 1916.

Medicine, Magic and Religion.

The second course of Fitz Patrick lectures given this week by Dr. W. H. R. Rivers before the Royal College of Physicians formed a continuation of the course he gave last year. He has dealt with the relations between medicine, magic, and religion from the historical and evolutionay points of view. These relations were used as a means of illustrating the problems which arise when an attempt is made to decide whether the similarities of medical practice found in different parts of the earth have arisen independently or are the result of transmission from one place to another. It was shown that, side by side with the measures which bring medicine into close relations with magic and religion there are others which correspond to our own domestic remedies, and it is in this branch of the medical art that similar practices are especially apt to occur. According to the hypothesis of independent origin, these widespread remedies should have grown out of a body of beliefs and sentiments common to mankind. The fact that these remedies stand apart, and seem to have no direct relation to the magical and religious atmosphere which dominates the lives of peoples of rude culture forms a great difficulty for the advocates of independent origin. In the second lecture the subject was illustrated by means of blood-letting, massage, vapour bath, and circumcision. Various features of these practices were considered in their relation to the controversy between the advocates of independent origin and transmission. Especial attention was paid to the modification of custom which often takes place when a medical practice is introduced into a new home. It was suggested that the modification may sometimes be so great as wholly to disguise the original therapeutical character of the practice. In conclusion, it was pointed out that modern progress in medicine, especially in the domain of psycho-therapeutics, is leading us to a condition in which medicine stands in that close relation to religion and other deparments of social life which is found in the earlier phases of social evolution. It was hold that the increasing specialization which is generally supposed to be characteristic of evolution has its limits, and that the present condition of medicine illustrates the nature of this limitation.—*The British Medical Journal*, November 18, 1916

Heliotherapy at Algiers.

The value of sunshine as a therapeutical agent has been recognized in varying degree from the remotest antiquity, but we seem to forget all about it for a century or two and then suddenly once more become alive to its virtues. We are just now on a rising wave, and heliotherapy is being employed on a large scale, wherever available, in the treatment of surgical tuberculosis, impaired vitality, chronic organic debility, and, in another department, to hasten the cicatrization of indolent ulcers and war wounds. During the last few years Professor Curtillet, surgeon to the Civil Hospital at Algiers, has had free recourse to the open-air and sunshine treatment for the inmates of his children's wards. The climate of Algiers permits of this treatment being applied pretty well all the year round, so that on every day the sun shines—and rare are the days when its shining face is not seen at all even in January and February—the temperature is such as to allow of exposure to the sun's rays in the gardens of the hospital. The treatment, as is well known, must be applied very gradually. Beginning, let us say, with a limited application to the legs, we start with five or ten minutes' exposure to the sunshine, and the period and area of exposure are gradually extended, until ultimately several hours daily can be spent in the sunshine. According to Professor Curtillet, the benefit derived from the treatment, which is unquestionable, is in no sense specific in the sense of antituberculous, but is due merely to improvent in respect of general ,nutrition. In the treatment of wounds and ulcers by this means precautions are taken to protect them from dust and flie. There can be little difference of opinion as to the greater tendency to heal under the influence of fresh air and sunshine, but experience has shown that some caution is necessary, because too sudden or too protracted exposure is apt to determine rather pronounced local reaction, in excess of that likely to prove beneficial.—The *British Medical Journal*, December 30, 1916.

The Health of Turkey.

Speaking at a meeting of military surgeons at Metz, Dr. Auerbach*, who appears to have spent several years in Asiatic Turkey, reviewed the conditions of medical practice in Turkey and the prevalence of certain diseases. In Syria medical practitioners belong to two sharply defined schools, the European and the native. The native physician, who had been taught in Constantinople, was far better educated than the pupils of the Beirut High Schools, where instruction in anatomy, pathology, and midwifery was faulty for want of material. *Esprit de corps* in the medical profession was practically unknown, and though the chemists were. as a rule well equipped, they were not always reliable, and were, Dr. Auerbach said, invariably tied financially to some physician. The hospitals were almost entirely in the hands of the missionaries. No public health medical service existed. Malaria, chiefly tertian, was the most prevalent disease, but severe forms were rare. Treatment was, as a rule, inadequate. In Jerusalem almost all the inhabitants were affected, and among 8,000 school children examined before the outbreak of war, 25 per cent. were found to be infected at the first examination of the blood. Trachoma was so prevalent that 33 per cent. of the population were ininfected. In the autumn, dysentery, usually amoebic, was common; it reacted vey satifactorily to gluteal injections of emetine. Typhoid fever, though not rare, ran a milder course than in Europe; it was often confused with Malta fever. Cases of cholera, usually introduced by pilgrims returning from Mecca, were observed almost every year. Epidemics of small-pox occurred every year, and vaccination was not universal. The vaccination was made on the skin between the thumb and index finger. Pulmonary tuberculosis was rare, and was usually introduced from without. Among the natives it was almost unknown, but when they did develop pulmonary tuberculosis it was rapidly fatal even in cases which at first seemed slight. The miliary form of pulmonary tuberculosis was more common among the natives than the ulcerating, cavityforming type of the disease Tuberculosis of the bones was relatively more frequent, and reacted satisfactorily to sunlight. Gonorrhoea and and syphilis were far less common than in Europe, probably because of early marriage in the East. During five years Dr. Auerbach had never seen a case of tabes or general paralysis among the natives. Cancer, notably cancer of the uterus, was rare, but displacements of the uterus were common, no doubt on account of frequent confinements. Fecundity among the native women was counteracted by the enormous infant mortality; only about four out of ten children reached maturity. Polygamy was most exceptional. It was not surprising that by the age of 30 the women had become faded, for they had had, on the avervge, ten to twelve confinements.—The *British Medical Journal*, December 16, 1916.

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* *Deut. med. Woch., August 10th, 1916.*

Molten Metal in the Ears

From time to time, if we may believe what we read, kings, criminals, and the heroines of romance or history have all had occasion to pour melted metal into the ears of superfluous personages. Poulet, for example, records the case of a wife who endeavoured to rid herself of her husband by pouring melted lead into his right ear while he was asleep. The results were very serious, but not fatal. The mass of lead was extracted eight months later; permanent facial paralysis and loss of taste on the right side remained behind. St. Stephen, King of Hungary, married Gisela, daughter of Duke Henry II of Bavaria in the year 996. It is said that this lady got rid of one Vasul, a pretender to the throne, by having molten lead poured into his ears—an action that could not well be attributed to a saint, however credible it may now seem when related of a Bavarain, Marcus Crassus, the wealthy Roman general and triumvir, was defeated and taken prisoner at the battle of Carrhae in the year 53 B.C. He was put to death by his captor, the Parthian general Surenas, who had molten gold poured into his ears, or, according to another account, down his throat, and finally cut off his head and sent it to the Parthian king. Courts and criminology apart, however, analogous events sometimes happen by accident in the industrial world. In foundries and metal works it has frequently occurred that gouts or splashes of molten metal have, by some accident, made their way into the foundrymen's ears, producing severe burns of the pinna or meatus, and other serious consequences. Dr. R. Hahn has recently described* the case of a founder, aged 19, who received a drop of melted cast iron in his right ear; the metal fell from a height of about a metre on to the cement floor of the foundry, some two metres away from the patient, who fainted and fell to the ground. He came to an hour later with atrocious pain and complete deafness in the right ear, dizziness, and tinnitus. Three hours afterwards a copious discharge of clear, watery fluid from the right ear took place; the pain went away in three days, but the other troubles persisted; and the mastoid region became swollen, painful, and tender for a few days. The man came to hospital thirteen days after the accident. The right pinna and the cartilaginous portion of the external auditory meatus were found to be normal; the osseous was very much narrowed by inflammatory swelling of its anterior and inferior walls, and was further obscured by a free secretion that was watery rather than purulent. No view of the tympanum could be obtained, no foreign body could be seen, and there was no evidence that the labyrinth was involved. The meatus was treated by syringing with alkaline lotion; the swelling lessened, and after a week small metallic scales could be seen in the infratympanic recess, while a few more were removed by syringing. The tympanum became visible nearly four weeks after the accident. It showed a large perforation in front of the manubrium of the malleus, and below it a black foreign body firmly wedged in and immovable. The syringing of the meatus was continued, and metallic particles continued to come away. A week later under cocaine-adrenalin anaesthesia the foreign body was extracted, and proved to be a pellet of cast iron the size of the head of a sulphur match. The suppuration of the middle ear ceased a few days later, but the large perforation of the drum remained open; the patient could hear the whispering voice half a metre away, and the functions of the vestibular nerve were found unimpaired. Dr. Hahn argues that the hot metallic fragment probably burnt a hole in the anterior part of the tympanic membrane in this case, and he discusses the indications for and against immediate operation for the removal of such foreign bodies otherwise than by way of the external auditory meatus.—The *British Medical Journal*, December 9, 1916.

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* *Giorn d. R. Accad. di Med. di Torino* Turin, 1916, lxxix, 338.

Gleanings from Contemporary Literature.

THERAPEUTIC PROBLEMS AND POSSIBLE ANSWERS.*

By Charles Edwin Wheeler, M.D., B.S., B.Sc. Lond.

Physician to the London Homoeopathic Hospital.

President of the British Homœopathic Society.

It is a long time since the British Homœopathic Society has been asked to listen in two successive years to an address from the same President. It has been felt no doubt that while it is a legitimate ambition for every member to aspire once in his lifetime to lecture his colleagues without fear of reprisals, it would strain human endurance for the Society to face this experience twice from anyone. However, the War which has shattered so much and so many things, does not only exert influence on nations and great societies, but tugs at the roots even of our little peaceable Association and in the disturbed atmosphere of almost universal fighting and constant national emergencies, the directors of the British Homœopathic Society have thought it best to ask all the existing officers to continue their term of service, making as it were one session of two years. Among the others your President renews his duties and can but ask your indulgence to see him lag thus superfluously on the stage after his legitimate part is played. He offers you his heartiest thanks for the honour you do to him and remembering how kindly you treated him last session he is emboldened to do his best for you once more. It is not easy with our scanty numbers and urgent labours to keep our Society's flag flying, but as far as he can your President will take his utmost share. If you murmur that he might have spared you a second Presidential address, he must throw the blame partly on to secretaries sufficiently taxed to fulfil their engagements as it is and only too willing that the President should take one evening off their hands. But you shall be as little penalized as may be on this occasion. You have done me great honour, I will in return weary you for but a little while. My address is in a certain sense a development of that of last year and you must forgive me any repetitions that I have used for greater clearness.

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* The Presidential Address read to the British Homœopathic Society, October 5, 1916.

Since last October our cause has sustained losses. The years never fail to lay their tribute on human societies and we mourn deaths in the North and the South, rejoicing, however that both Dr. Hilbers and Lieutenant Colonel Ellis were able in long and well-spent lives to give royally of skill and energy, gifts of learning, foresight and courageous endeavour, leaving us all the richer for their time of living. In America, Dr. Gregg Custis, one of the most honoured and attractive figures of the 1911 Congress of happy memories, has ended a brave and distinguished career, and Dr. James Tyler Kent has gone, leaving a notable gap in our ranks. He is assured of a place among the most honoured followers of Hahnemann, and the controversies which his work has roused are a tribute to the force and vigour of his teaching. As befitted his faith he followed ever the path of clinical experiment and has broadened and smoothed into a roadway the track which the master Hahnemann drove through the uncharted wilderness. We best honour the great by the endeavour to blow to a flame any sparks of their spirit that we may find in ourselves rather than by blind adherence to formulas which were used by the pioneers as aids but should not become crutches for their disciples. Test all things, hold fast to the good, is the only formula that honours master and follower worthily. The year's toll to death then of homœopathy is of great quality but mercifully small and all of it has left to us ripe achievement and promise fulfilled; but I cannot turn to our Society's work without a word on that dreadful harvest of lives reaped and alas! yet to be reaped on fields of war. Here are dead and dying the promise of youth, the early achievement of manhood, the hope of years to come, and over them love and care, dreams and visions, seem to burn to ashes of despair. Bravely, with a gay courage which it were almost impertinent to praise, with an assured confidence in their cause which glows like flame, the flower of manhood goes down into the pit of hell whence the nations must emerge maimed and scarred. There is no one to whom this horror of death and wounds does not come near, no one whom this terror of night and day for loved ones in danger does not oppress; and we here, partners in our nation's sorrow, have losses to mourn and losses to fear that make the heart ache beyond the power of consoling. The lads give their all—we, the older and the slower, see our heart's treasures of life thrown to pay the price of peace and freedom. Of each dead valiant soldier we can say in the noblest words ever written of the untimely dying:—

> He has outsoared the shadow of our night,
>   Envy and Calumny and Hate and Pain,
> And that unrest which men miscall delight,
>   Can touch him not nor torture him again.
>   From the contagion of the world's slow stain
> He is secure, and now can never mourn
>   A heart grown cold, a head grown gray in vain.
> Nor, when the spirit's self has ceased to burn,
>   With sparkless ashes load an unlamented urn.

And in that knowledge and belief we find what solace we may.

Not only now as members of a small society, but as citizens, sharers of a nation's cause, we will uplift our hearts out of sorrow:—

> Master, what of the night?
> Child, night is not at all
> Anywhere fallen or to fall,
> Save in our star-stricken eyes.
>
> Forth from our eyes it takes flight,
> Look we but once, nor before,
> Nor behind, but straight on the skies:
> Night is not then any more.

Our work is and must ever be to struggle against disease and death. Therefore, in the many adjustments of civil life that war has proved to be necessary, we, at least, have to pursue our customary duties though with more energy it may be and perhaps, in new ways. Thus I need make no apology for turning from the great emergency that faces us all to our particular work. Probably the better we do our own work the more surely we help the cause to which we would devote ourselves. And, as specialists in therapeutics, we have our own unique duty to foster our own knowledge to extend it if we can. The last twelve months has shown the beginning of a movement that may prove of vital consequence to us as homœopathists and I must not let this occasion pass without alluding to it. As many of you probably know there has been a considerable stirring of late in America, public and professional, with regard to the relations of the homœopathic and the dominant schools. Since in the United States homœopathists are too big a body to be ignored as in Europe, the dominant school would gladly absorb them if the price were not too high for their pride; and, on the other hand, the lesser numbers of the homœopathists and the special difficulties of a minority combine to make it far from easy for their schools to maintain the level of excellence which they have certainly attained, and of which they are rightly proud, but which is also the chief condition of continued existence. Where both sides have reason for ultimate agreement we always find familiar symptoms of the approaching compromise – violent attacks on each other, violent protestations that no compromise is possible, and quiet attempts all the time at accommodations and reconciliations. Now the State University of California has established two additional chairs of teaching, one for homœopathic materia medica, one for applied homœopathy. Both the professors who hold these posts are, and will be, in all respects on an equal footing with their colleagues of the dominant school and supplied with the necessary opportunities for clinical demonstrations. In return, the distinctively homœopathic school of San Francisco closes its doors. Here therefore is obvious gain and obvious loss. The latter is slightly accentuated by the fact that the homœopathic courses are optional. Only time will show if they attract students. If they do, then the gain in prestige for homœopathy in becoming a recognized special subject of a University career far outweighs in my judgment the immediate loss. When I say that Dr. William Boericke has already begun his work as Professor of Materia Medica, you will perceive both that this experiment has got beyond the talking stage and that it could hardly start under fairer auspices. The other chair is shortly to be filled. Now, clearly, if this Western experiment succeeds, similar compromises are likely to occur more to the East, and it is certain that the general establishment of chairs of homœopathic therapeutics in American schools must react on the prejudices of Europe, and our long years of ostracism may conceivably find a term. In that hope we may well look to California with the deepest interest and concern.

This event which I have described to you is no mere addition of an item to my Presidential sermon. It is a vital part of it. For if there is any chance (however small) of more general recognition of homœopathy, every believer in it must labour harder than ever to improve its armoury. We are practical men holding a practical faith and have rightly been in the main content hitherto to say of our own law, "Explain it how you will, it works." Patients and doctors are naturally more interested in recoveries than in reasons, but we are, or should be, also filled with scientific curiosity, restless in the presence of the unknown, slow to admit anything as unknowable, however long and steep the path to knwledge. In this capacity we must seek to understand what we do and the more shrewdly we can suggest explanations of our success in following Hahnemann's recommendation, the more likely are scientific men to listen to us. We must never forget that our guesses, however shrewd, must remain perhaps for years no more than guesses. Woe to us if we were to set them up as dogmas! But the mind that mechanically follows a precept and never looks behind it, may have its value in some professions and may have worldly success in medicine, but does nothing for the cause or for the future. There should be none such here.

Moreover, as the rule of homœopathy is a clinical rule, established by clinical experiment, it will be from the bedside and the clinician that the proof or disproof of our theoretical explanations will come. Nay! even the raw material for theoretical explanations. We may pray aid in pathologist and physiologist—indeed we must; but they can only help our work not do it for us. There is not a physician who may not at any moment have a case to treat, the course of which may not throw light on our obscure problems. If such a physician is unthinking of the problems or careless of possible explanations, he may cure his case but miss a reward that would enrich the world. In every mind there should be sparks of curiosity, guesses at truth only waiting for a chance wind of experience to blow to flame. But what censure is too grave for the mind that quenches the spark or, worse, kindles no torch from the sudden fire? If I may scatter a spark or two in your minds to-night I am well repaid for my effort and you for your patience. To many all I can say will be already familiar. They must forgive my insistence and even for them a reminder may be timely. Not lack of intelligence but inertia of will is the bane of all striving. Who knows the poison better than I? So let me speak not as preacher but as fellow-listener to thoughts that cannot be too often repeated or pondered on.

"Treat likes with likes." That we believe leads to practical success; but why, why, why? Hahnemann suggested that the drug disease induced by the remedy overcame the pre-existing natural disease, having rightly noted how rarely two diseases occur simultaneously. But his explanation seems inadequate. It is difficult to conceive how one or two doses of a remedy can induce a drug disease in the sick even though their special sensitiveness is granted when repeated large doses are needed to produce symptoms in the healthy, and difficult to realize why the drug disease should prove more potent than the pre-existing disease. Actually however Hahnemann was endeavouring to formulate a conception which in his day could not be accurately expressed for lack of sufficient knowledge. As far as I can read his thought, his conception was not far removed from that which has led Professor Schulz to a practice almost identical with that of Hahnemann's earlier days of homœopathy, a similar conception is at the back of Trousseau's famous substitution theory and the other ways of regarding drug action which have more than once unconsciously suggested homœopathy. Schulz's doctrine is the best grounded of these explanations. So I will take it as the type. It is no doubt familiar to you. I myself have insisted upon it in season and out of season till the name of Hugo Schulz must have seemed to my hearers to be for me what King Charle's head was for Mr. Dick; but I will venture to state it once more. It is founded on Arndt's law of reactions to stimuli, a biological law of universal acceptance, to the effect that stimuli which damage protoplasm in relatively large deses, encourage its life activity in relatively small doses.

Provings on the healthy (eagerly pursued by Schulz) discover what cells and groups of cells can be damaged by certain drugs, then when these cell groups give evidence by symptoms that they are attacked by disease, small doses of the "similar" drugs are given to encourage the life activity of the struggling cells and so relieve the patient. The law of Weigert, which declares that the biological response to stimulus tends to be in excess of immediate requirements (as, for instance, a dose of diphtheria toxin causes the production of far more antitoxin than is necessary to neutralize it), can also be invoked to explain the lasting effect of even one dose or a few doses of a remedy.

Thus these biographical conceptions lead to a homœopathic practice, and we do well to bring them into prominence. The conception of Schulz helps to explain many phenomena of cure Whenever one organ or tissue is predominantly attacked, in such diseases as gastritis, or colitis or pneumonia, we may even say in acute diseases in general, where we can usually observe the brunt of the battle falling upon specific tissues, in all these cases it is readily conceivable that the similar remedy directly encourages the life activity of the struggling cells. We all know now that only through the channels of natural resistance can drugs work effectively, but, as these resistances are all at last dependent on cell activities, we can conceive of our remedies as encouraging theses activities. This view would also make it more comprehensible why it is so largely possible to have almost routine remedies for acute diseases. We should say, "In these diseases there is always a marked and definite tissue involvement. The routine drugs are marked and definite stimulators of those tissues."

There is a subsidiary difficulty which we may glance at. Phosphorus is frequently helpful in lobar pneumonia, and phosphorus can definitely attack lung tissue thereby conforming to Schulz'z rule. But phosphorus given to the healthy falls far more heavily on the liver than on the lungs, and, as I have heard an objector say: "A case of phosphorus poisoning is not much like an ordinary case of pneumonia." We counter this attack by pointing out the admitted fact that diseased cells are more sensitive than healthy, as presumably in a prover, the liver cells have a greater tendency than the lung cells to be affected by phosphorus. But lung cells have *some* tendency that way, and diseased (therefore sensitive) lung cells will have that quality so increased that it surpasses the "pull" of healthy liver cells and in pneumonia the lung cells will be the first to take up the drug. This may be true: it is at least plausible. Apart from acute diseases, demonstrable tissue diseases, there remain what Compton Burnett called organ diseases, which are capable of using the Schulz explanation of drug action. It is quite unquestionable that the relation of certain drugs to certain organs is definite and close. The respective effects of chelidonium on the liver, of digitalis on the heart, probably of ceanothus on the spleen, may be cited as instances. Rademacher borrowed the conception of organ remedies avowedly from Paracelsus. That great genius without a doubt grasped the principle of curing like with like. It is said that he even wanted, in the absence of a better pathology in the sixteenth century, to call diseases by the names of their appropriate remedies —the arsenical, the mercurial disease and so on—and it is clear that the remedy was chosen from the similarity between its effects on the healthy and the symptoms of the disease. Unfortunately the mystical, symbolical, cryptic language of Paracelsus, combined with the contemporary lack of definite knowledge which even his restless activity could not discover in his short lifetime, have together rendered his work little fruitful for our time. He failed to hit on the Hahnemannian method of "proving." Though not the invention of Hahnemann, it became in a real sense his possession and may perhaps be the most abiding in some ways of all his mighty gifts. Whatever comes to his conceptions the method of proving has promise of even greater rewards that it has yet given If only the profession as a whole would adopt it and bring to its use all the resources of modern investigation, we should see such a forward bound in the practice of our art as might well make our hearts rejoice. Meantime let us do what we can in this way and encourage the gallant efforts of our American colleagues whose greater facilities are being worthily used to this end.

To return to our subject. Burnett, following Rademacher and Paracelsus, achieved striking results. His "organ" treatment has received less attention than it deserves, though the Schüssler system has certain analogises to it. It is not, of course, homœopathic in a fine or detailed sense. Given a manifest disease over-whelmingly affecting one organ, a remedy is chosen that overwhelmingly is attracted to that organ. It is a homœopathic remedy in so far as it affects the same tissue, and it may be conceived that it gives a general stimulus to the cells of the diseased organ and so benefits the patient. Certain methods of the dominant school present analogies and they may be summed up in the saying of the slave in the Latin comedy—"When things are mixed, it is well to mix them a little more." Behind the question-begging but orthodox adjective, "alterative," we may, if we will, detect the Schulzian explanation of the local stimulus.

Note that physiologically the name "stimulus" may be used of agency that restrains over-activity as well as of one that encourages under-activity. The cure of disease consists as often in doing the one as the other, but the Schulz formula would equally apply. I want presently to say a word or two upon primary and secondary drug actions, which may perhaps [illegible] value in regard to this aspect of the question. So far then the Schulz explanation may be regarded as at least moderately satisfactory. It is founded on unquestionable biological truths and it can lead (as Schulz has shown) to a practice which avowed homeopathists can well practise. Indeed the customary use of the lower dilutions, broadly speaking, follows this conception, which again accords well with the teaching of Dr. Hughes of famous memory. Organ remedies unquestionably need to be given in low potencies and mother tinctures. Their use forms a link in America with the Electric school. Most of use would admit that the action of the higher potencies is conditioned by great accuracy of choice. This is not aimed at by tissue or organ remedies, avowedly used as simplifications of the doctor's task. Their users would contend that to get on to the target is to score something even if less than a bull's-eye. The high potency either hits the bull or misses altogether, the low potency has a greater chance of at least hitting the target. Similarly the undoubted action of the Quinton plasma in some cases might be labelled a tissue polypharmacy—the diseased tissues taking from the multitude of drugs supplied that or those which they need, while the superfluous ones fail to do harm from the fact that they fall so closely into line with the natural resources of the body.

Before leaving the Schulzian explanation of drug action as tissue stimulation, I would like to hint to the surgeons that the local effect of antiseptics is always considered in terms of power to kill bacteria, never in terms of power to stimulate tissues. Yet as all antiseptics are violent protoplasmic poisons they must by Arndt's law be also protoplasmic stimulants in more dilute solutions and there may be some value in them from this point of view. In wounds I suppose they are usually of too great strength to do more than depress vital activity and in irrigations for gonorrhœa, for instance, this aspect is of great importance. But consider the therapy much lauded by many physicians of such drugs as urotropin. This drug sets free formaldehyde in the urinary tract and elsewhere, and is thereby held to disinfect areas and cause the cure of bacteria infections. Frequently it seems to do good. But remembering the futility (experimentally proved) of attempts to disinfect the alimentary canal (a relatively accessible tract) by drugs, is it credible that formalin is ever sufficiently concentrated in the urinary apparatus to disinfect it? Is it not far more probable that the formalin acts as a tissue stimulant and that the improvement (if any) is a secondary and not an immediate effect of its use? The problem is of course analogous to that of the effects of the "great sterilizers." Salvarsan, quinine, emetine, these are the sheet-anchors of the Ehrlich therapeutic method and are undeniably most valuable drugs. Administered intravenously it is more than probable that they do a certain amount of direct killing of parasites. But they all of them affect the body tissues profoundly. Is it not possible that they too have an effect on body resistance processes surpassing their direct parasiticidal action? As we shall presently see the similar remedies do seem to be able to affect body resistance and all these remedies are similar. Arsenic is often at any rate homœopathic to syphilis, quinine to malaria, emetine (or at least ipecacuanha) to dysentery; care lest the disease be aggravated by this last has been definitely enjoined. This surely is significant. Besides, all these drugs sometimes fail. If they are purely parasiticidal why should they ever fail? If, however, their effect is indirect they are working through so complicated a mechanism that possibilities of failure are multiplied. Wesselhoeft has shown that quinine outside the body has little or no parasiticidal effect on malaria germs in any concentrations comparable to those presumably produced even by large doses of the drug. This is good work and should be followed up and extended. Emetine has come deservedly into favour as a remedy for hæmorrhages of most diverse tissues. Are all these actions parasiticidal? Most improbably: and once more homœopathists quietly mention that they have known of the powers of ipecac. to control hæmorrhage ever since it was proved. More than that they know what kind of hæmorrhage it will control and when other remedies should be sought. I heard the late Sir T. Lauder Brunton say once that while he had often cured constipation with half minim doses of tinct. opii, he never knew when the remedy would help. But we could have told him if he would but have listened. Similarly we can fix the sphere of emetine for hæmorrhages. While therefore the theory of the direct sterilization must be considered it has clearly far to go before the final demonstration of its truth.

However, there are uncomfortable problems which come to prevent our acceptance of the Schulz solution as a complete explanation of all drug action yet; I am willing to say for the present that it may be a valid explanation of some of our successes. But consider further for a while.

We have come to realize, thanks to the bacteriologists, that any attack on the body is met by a definite and appropriate defence. The invasion attacks this or that tissue, but the defence, following the soundest of military maxims, directs its effort against the invading armies wherever they are. Phagocytosis and its accompanying lysins, opsonins agglutimins, &c., are all antibacterial measures not tissue stimulants. In bacterial diseases however the medical profession is confident of its ability to help. Vaccine therapy is a drug therapy though its ingredients are germ tissues and not plant tissues or mineral substances. Vaccines are directed entirely towards encouraging body defences. It is at present a confidently asserted *dogma* that each vaccine is specific, encouraging the defence which is normal against the germ from which it is manufactured. I will not labour the point (usually conceded more or less grudgingly) of the homœopathicity of vaccines themselves, but we as homœopathic prescribers give our indicated remedies in bacterial diseases as well as or in place of vaccines and believe that we do well so to do. But what is it that we expect to do by administering them? Do our remedies stand aside from the battle of bacterium and leucocyte and aid by stimulating the tissues attacked—acting, shall we say? rather as the Red Cross Service does in warfare—or do they join in the fight as combatants? In the first case the explanation of their action would be the Schulzian explanation previously expounded. Quite conceivably this effect is produced but demonstrably it is not the sole effect. Wherever any measurements are possible of the body defences, evidence accumulates that the similar remedy influences this mechanism of antibody production. Baptisia increases agglutinating power to *Bacillus tpyhosus*, phosphorus affects the opsonic index to tubercle, hepar sulph. and echinacea the index to staphylococcus, silicea causes a leucocytosis, arsenic and quinine affect phagocytosis in general. This is all experimental evidence and requires extension and in some instances confirmation, but its amount accumulates and points in one direction. But it renders more uncertain the belief in vaccine specificity. The unquestionable increase in resistance that takes place even in untreated cases is explained as the result of response to the invading bacteria : general hygienic measures might be expected to place the body in more favourable conditions for antibody production without inducing specific responses, and exercise in chronic tuberculous infections or massage of affected parts can both be held to be measures of auto-inoculation But that drugs other than vaccines should affect the specific resistance mechanism is a proposition difficult of acceptance for most bacteriologists. However, closer investigation shows that the foundations of belief in vaccine specificity are already shaken. Experiments showing the effect of yeast on resistance to germs of suppuration have been made by members of the dominant school and much more significant is the fact that a vaccine given against one germ seems frequently to affect the resistance to others, inaugurating as it were a certain general response as well as the particular effect always present and usually much more marked. Clinically we are aware that one intercurrent disease does now and then markedly affect a more chronic one. Hahnemann noted this : it is the basis of Coley's treatment for sarcoma and the disappearance, for instance, of cystitis after has been observed. It is therefore fair to say that in so far as our drug experiments show results in power to affect antibody production they are not to be at once dismissed on that ground. Rather do they add something to the mass of other evidence which is accumulating.—The *British Homœopathic Journal*, November, 1916.

(To be continued).

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SOME TUBERCULOUS MANIFESTATIONS.*

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I wish to-day to speak about some of the ways in which the tuberculous diathesis can manifest. My belief is that the inherited tuberculous tendency works out in ways more numerous and more varied than is generally recognized. Now, in the case of a condition that is not a generally accepted one of tuberculous disease, in which one cannot find tubercle bacilli, or any other direct evidence of tuberculosis, what should we regard as satisfactory evidence that the case had a tuberculous origin? A pronounced family history of tuberculous disease would make it at least possible, and if, in addition, the case yielded to tuberculinum, when, perhaps, other apparently well-indicated remedies had failed, the possibility would become a probability.

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* A Post-Graduate Lecture.

There are several diseases, not generally supposed to be tuberculous in origin, that I frequently find fulfil both the afore-mentioned conditions. This does not necessarily mean that I believe every case of such diseases to be a manifestation of the tuberculous diathesis, but certainly in my experience a large proportion are so.

I propose to mention a few of these disease conditions, quoting one case of each as typical examples.

Asthma is one of these diseases.

A. E., a boy, aged 12, came to me for this complaint in September, 1914. He had had frequent attacks, once a week or oftener, for four or five years. The asthma usually woke him about 4 a.m., though he sometimes had attacks in the daytime.

The attacks were worse in wet weather, and worse after a heavy meal (which is a common modality). He feels the heat very much, and takes cold frequently. There is a family history of phthisis. He received a single dose of tuberculinum 30, and after a short initial aggravation (or negative phase) showed great improvement. He has since had infrequent doses of the same remedy, in ascending potency, with a steady improvement. The last strength he had was the 50M, and he has gone this winter three months without an attack, besides being very much better in health.

One swallow does not make a summer, and this one case does not make asthma a tuberculous disease, but I am convinced that a large proportion of cases of asthma will be found similar to this in origin and in reaction to treatment by tuberculinum, and the rest will need antituberculinum remedies (about which I shall say more later).

Ringworm.—Probably most of us have noticed how frequently ringworm occurs in patients of the typically tuberculous appearance. More than one well-known skin specialist in the orthodox school is of the opinion that this disease is a tuberculous manifestation.

And those of us who have found how frequently it yields to treatment by tuberculinum will be convinced as to its true nature. One short instance :—

A. W., aged 12, schoolboy, had formerly, so his mother said, been under treatment for "consumption." He now came up with a well-defined patch of ringworm (diagnosis confirmed by the pathologist) on his forehead. He had blue sclerotics, bright red lips, and he sweated at night.

On March 25 he received a single dose of bacillinum 30. No external treatment. On April 30, five weeks later, he came up with absolutely no trace of ringworm.

If further evidence is needed as to the tuberculous origin of ringworm, I would advice the perusal of Burnett's book, "Ringworm, its Constitutional Nature and Cure." How long will it be before the orthodox school treats every case of ringworm with injetions of tuberculin?

Flatfoot.—It is recognized that this disease may be caused by tuberculosis in the region of the ankle or tarsal bones, but even when no definite disease of this kind is present, we should keep in mind a possible tuberculous ancestry.

F. H., aged 42, tram conductor, came up complaining of pain in the ankles, worse when on his feet. A sister died of phthisis. Examination showed a severe case of flat feet. The patient received one dose of tuberculinum bovinum 30. He returned in three weeks much improved, stating that two days after he came here he could go upstairs on his toes, which he had not been able to do for six months.

Again, let me repeat I do not mean to imply that every case of flat foot has a tuberculous origin, but that it may be so more often than is generally thought.

Do we usually connect chronic rheumatism with tuberculosis? I believe that a certain proportion of cases of this complaint and of rheumatoid arthritis depend on tuberculous inheritance. As examples:—

Mrs. W., aged 53, came to me with pain and stiffness in all the joints, which she had had for ten or twelve years. The pain was worse at night in bed, worse on first motion, worse from a bath, not worse (if anything better) in wet weather. The patient was chilly, but must have air. She had had quinsy twice, years ago. There is much phthisis in the family. I began with rhus. tox., which made her no whit better; then causticum with the same result. She also had pulsatilla and phosphorus with no benefit.

A dose of tuberculinum bovinum resulted in immediate improvement; pain decreased, swellings went down and the patient could walk much better. She had tuberculinum in various potencies, improving in general helth as well as locally, but unfortunately she did not live long enough to be cured. She died of an appendix abscess. I should like also to refer to a case Dr. Weir had here a short time ago of very advanced rheumatoid arthritis, which improved in a most marvellous manner under tuberculinum. In any case of a chronic rheumatic condition, where the remedy is not clear, or where the patient will not react to apparently indicated remedies, remember the possibility of a tuberculous origin to the condition, and see whether tuberculinum will not be the one thing needful.

Another condition which comes in this category is the "*Tendency to take colds.*" You may think that is too trifling a complaint to be dignified by the word "disease." But let me remind you that the word "disease" means a state opposed to ease, and then let me ask you if a bad cold in the head is not a state very much opposed to ease, both of mind and of body. If you cannot answer emphatically, then you have never had a bad head cold."

The more this symptom is the main one complained of by the patient, the more do I think of tuberculinum as the remedy. If colds in the head are, as I think, a manifestation of latent tuberculosis, it is explained why they are one of the most difficult things to cure, once they have got well started. I believe colds in the head are a safety valve, and prevent more serious disease. One certainly notices repeatedly that patients suffering from a chronic deep-seated disease will say that they used to take cold frequently until their present complaint manifested. It is certainly not advisable to suppress cold, as is so often done with strong drugs like quinine.

To eradicate the tendency to take cold will always require a deep-acting remedy, usually either tuberculinum or an anti-tuberculous remedy. Sometimes the frequent colds are to be attributed to some abnormal condition of the mucous membrane of the nasal passages or throat, and the constitutional treatment by curing this abnormality will lessen or remove the tendency to take cold.

L. and R. G., brothers, aged 7 and 10, were brought up with the complaint that they were always taking cold.

They both had enlarged cervical glands, and one had enlarged tonsils. They both felt the cold more than the heat.

The younger had involuntary urination day and night. Mother's father and father's mother died of phthisis. Both patients received single doses of tuberculinum, the elder the 30, the other the 12, rising by stages to 200 and 1M. After four or five month's treatment both are practically well; no more colds, tonsils and glands cleared up, bladder trouble quite gone (this last symptom required a dose of calc. phos. to complete the cure). Of course with such an overwhelming history of tuberculosis one would have expected a good result from tuberculinum.

Chronic Catarrh, a similar affection to the constant taking of colds, calls for similar treatment, and need not now be mentioned further.

I have for long been struck with the frequency with which cancer and consumption occur in the same family, either side by side, or in alternate generations.

In the family which comes first to my mind, the mother died of cancer of the breast, the father has had half his tongue removed for the same disease, while the three children are all of distinctly tuberculous type, and one, a young man, aged 30, suffered from frequent colds on which no remedy has the slightest effect except tuberculinum. It is true there is no definite tuberculous disease in this family (*yet*, at any rate), but though I cannot at the moment fix in my mind a definite family in which the two diseases were undoubtedly present, I have come across instances so often as to leave no doubt in my mind as to there being a relation between the two.

I cannot say that cancer is a manifestation of tuberculosis, though I think it possible. It has been said that tuberculosis is a more difficult disease to eradicate than cancer. They may both be manifestations of a still deeper disease or miasm, presumably Hahnemann's psora. Even then cancer might be an offshoot of tuberculosis. It is worthy of note that during, say, the last quarter of a century, while the death-rate from phthisis has been steadily decreasing, that from cancer has been as steadily increasing. I have no cases to record of cancer cured, or even ameliorated with tuberculinum, but if any of my hearers have such cases I should be glad to have particulars of them. I have mentioned up to now complaints that I have come to regard as manifestations of tuberculosis, but that are not generally accepted as such.

There are many other complaints I frequently meet with that are undoubtedly sometimes of tuberculous origin, but if I were to talk about them all you would go away thinking that there is no disease but tuberculosis, and no remedy one need use but tuberculinum. I do not want to give that impression, but only to invite you to think of the advisability of anti-tuberculous treatment in any cases of the diseases I have mentioned that do not yield to apparently indicated remedies.

The majority of persons have a tuberculous skeleton somewhere in the cupboard.

I have mentioned more than once anti-tuberculous remedies. Now, of course, opinions may differ, but the chief remedies that I have found of use in tuberculous conditions are, besides tuberculinum—phosphorus, calcarea carb., calcarea phos., kali carb., silica, sulphur, natrum mur., sepia. I know there are others, but these are the chief ones of which I have had experience.

After tuberculinum, phosphorus is easily first. A few words about the tuberculous type. The majority of the patients suffering from the complaints I have mentioned will be found to correspond to the recognized tuberculous type. This type is no doubt familiar to you : the thin, flat-chested patient, with transparent skin, long curling eye-lashes, fine hair, &c. But any or all of these signs may be absent in a tuberculous patient. The signs I have come to place most reliance on, found, I may add, most often and most marked in children and young adults, are blueness of the sclerotics, bright redness of the lips, long lashes, darker in colour than the hair of the head. If, added to these, you have delicate skin and transparent complexion, and hair on the chest, the picture is more complete. But you do not always find these latter signs, whereas the former three that I mentioned are, in my experience, fairly constant.

In conclusion, this lecture is not supposed to be in the least exhaustive, but merely suggestive. My readers may be able to add to the list of complaints that seem to spring from a tuberculous foundation.

The patients that I wish to show you are all cases of well recognized tuberculous disease. They are, viz., a case of tuberculous ankle; one of chronic phthisis; two of lupus; and one of Bazin's disease. All, with the possible exception of the last named, are very ordinary cases, but it is the ordinary that one most often has to treat, and the refreshing of one's memory with facts known before does no harm. Also, I should be glad of any hints as to further treatment in any of the cases.

The patient with tuberculous ankle is a married lady, aged 52. She had pleurisy years ago, and there is a history of phthisis on the father's side. In July, 1912, she came up complaining of dyspepsia and menorrhagia, and said also that she had flat foot on the left side. She had as remedies, lachesis, sepia, and lycopodium. In September, she was complaining more of pain in the left foot, like knives, worse at nights; has to put the foot out of bed. She now says the ankle was scarped seven years ago. On examination, the ankle is found swollen and very tender. She was given tuberculinum bovinum 30 (unit dose). Two months later, the foot got so much worse that she was unable to come to hospital and was seen by a well-known physician in Cavendish Square, who said that she had tuberculous disease of the bones of the foot and that the foot must come off at once. She wisely declined operation, and on coming up again, received silica 12. Pain and swelling continuing and extending to the knee, I next gave silica 30 and prescribed Bier's congestion treatment, which latter markedly relieved her symptoms. She then had tuberculinum 12, first in unit doses, then fortnightly, followed by the 30, 200, 1M, 10M and CM of the same remedy, then going back again to the 12 given weekly, Under this treatment the ankle swelling entirely went down and the pain in both ankle and knee diminished. Now the ankle seems to her quite well; but she gets pain and stiffness in the knee. I am continuing tuberculinum, but should be grateful for suggestions.

The next patient is a married woman, aged 41. Her family history is not encouraging. Her father and nine of his brothers died of phthisis, and two cousins succumbed to the same disease. She came up first in April, 1912, complaining of a cough every winter, bringing up blood-streaked phlegm. She had sharp pains in the back on coughing; had night sweats and was wasting. Examination revealed a very poor chest with diminished vocal fremitus at the left apex, where also were heard faint crepitations and creaking rhonchi. was given phos. 12 in unit doses and instructed in deep breathing. Improvement continued till August, when she had phos. 30 unit dose. This held her, with progressive improvement, till February of the next year, *i.e.*, nearly eight months. On recurrence of symtoms, she had phosphorous 200, which held another five months. After that she went up the potencies to the CM, then began again at the 12. The last time she was examined there were no râles or rhonchi heard, but a duller percussion note remains with diminished vocal fremitus. She has lately been still further improving on calc. carb. 12. This patient has not had tuberculinum from me. I find it a curious but undoubted fact that phthisis is the one form of tuberculous disease where tuberculinum is of no avail. that is, where there are definite symptoms of tuberculous disease in the lungs. In the pre-tuberculous stage, the stage of catarrh or congestion, tuberculinum may help, but never in my experience when the disease is well established, even in an early stage. In all other tuberculous manifestations, tuberculin is one of the first remedies to think of.

Next a case of lupus. This boy, aged 15, has had a sore place on the angle of his left jaw for twelve years. He says he has been advised to have it burnt. His general health is good, and I cannot elicit a family history of tuberculous disease. He has had two doses of tuberculinum CM, a month apart, and I think the patch is a little smaller.

The other case of lupus is in a very early stage; in fact, I have not mentioned the word "lupus" to her or her mother, so as not to frighten them. She is a girl, aged 16. Her mother's father and sister died of phthisis. She came up eighteen months ago on account of what she called a pimple on the left side of her nose. She had had it for ten years, but lately it began to get larger. There is no pain nor any unusual sensation in the spot, which had been diagnosed by another medical man as a "nævus." The pimple began to diminish on the prescription of tuberculinum bovinum 30, but improvement has not been maintained, so the patient has been having X-rays to the place once a week. Still, progress is at a standstill. I should be glad of suggestions as to further treatment.

The case of Bazin's disease is in a young woman, aged 28. She has had the affection for at least ten years, and has had injections of tuberculin before coming to me for treatment. I cannot get any family history of tuberculosis. The disease affects both legs and causes a heavy and burning pain in the nodules that appear. The legs swell at night. The patient improved for the first year she was under me, on sulphur, in potencies from 200 to 10M. Then, progress slowing down, I gave tuberculinum bovinum in 200, 500, 1M, 2M, 5M, 10M and CM. On this remedy these swellings have appeared much less frequently, and I do not know if at present she presents any typical signs of the disease. In this case, as in the others, suggestions as to further treatment will be gratefully received.—The *British Homœopathic Journal*, January, 1917.

ACUTE POLIOMYELITIS.*

By Samuel A. Clement, M.D., Boston, Mass.

Poliomyelitis is an acute infectious, and supposedly contagious, disease of the central nervous system, occurring both in epidemic and sporadic forms, characterised by sudden onset, fever, vomiting, headache, lameness, hyperæsthesia and catarrhl irritation, commonly and promptly followed by a flaccid paralysis corresponding to the amount of damage to the gray matter of the cord or brain, and in leading to a progressive regeneration, although it may leave permanent atrophy of the muscles and deformities.

History.

The old name "Acute Anterior Poliomyelitis," commonly known as "Infantile Paralysis," is really a misnomer. We now know that the gray matter in the anterior horns is chiefly affected, but the gray matter in the posterior horns, the motor nuclei of the cranial nerves, and cells in the cerebral cortex are also involved. As to "infantile", cases have been reported from birth to 74 years of age. We do not as yet know a suitable name for this disease.

Poliomyelitis is a disease which has not attracted much notice in the sporadic form which occurs chiefly during the cold season, but has attained a high rank and wide interest in its epidemic form, occurring usually during warm weather and cropping out, possibly after skipping a few years, in places of its original occurrence.

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* Read before the Massachusetts Homœopathic Medical Society, November 1, 1916.

In 1810, Heine separated this paralysis from other forms of paralysis. Colmer, an American physician, in 1841 recognized the first real epidemic. In 1884, before the International Congress, Medin described the clinical types of poliomyelitis much to the astonishment of prominent pediatrists who still retain the old name, acute anterior poliomyelitis. Medin called attention to a widespread epidemic in 1887 which occurred in Sweden and Norway, especially studied by Wickham. In 1894 Caverly described an epidemic in Vermont. In all, including 1916, forty three epidemics have been observed in America and on the Continent. The .epidemic of 1907-08 in New York City reached 2,000 cases. The present epidemic is the largest the world has ever known. Approximately 20,000 cases have been reported.

ÆTIOLOGY.

Predisposing Causes. The majority of cases occur between 6 months and 10 years of age, although many cases are seen in young adults and even to 74 years. Low resistance, previous diseases, overwork, loss of sleep (especially in adults), exposure, unsanitary surroundings, lack of sunshine, may favor the disease, but every case must originate from another case.

Many times one would be led to think that poliomyelitis has a predilection for healthy, robust individuals. It has no respect for the most hygienic surroundings, nor for wealth, although the majority of cases are among the poorer classes. It seems to select one individual out of a large family. Two and even five cases have been reported in the same family, but it is rather unusual. When two or more cases are found in the same family, they seem to have contracted the disease at the same time.

The disease is probably due to a minute filterable microorganism which has been found in the secretions, excretions, and tissues of patients, attendants, other members of the family, etc. This bacterium has been cultivated, inoculated into monkey and the disease produced in them.

PROBABLE METHOD OF TRANSMISSION..

Since the virus is found in the mucous secretions from the beginning of the disease to even 6 months afterwards, it is logically assumed that it is transmitted by direct or indirect contact, as are measles, diphtheria, whooping cough, etc.

Facts against its being transferred by direct contact.

1. Extreme rarity of the disease in doctors, nurses, and other attendants.

2. Entire absence of the infection in laboratory workers who have experimented with the virus.

3. Comparatively rare occurrence of two cases in the same family.

4. Failure to spread in schools, hospitals, and institutions where one case had been found.

5. Comparatively maximum prevalence of the disease in country districts where personal contact is least intimate.

6. Summer incidence of the disease. The vast majority of cases occur during the warm weather when people are more in open air. With the onset of winter, when the population becomes more and more congested in houses, schools, etc., its morbidity is markedly reduced while the other so-called communicable diseases are much increased.

Facts as to transmission by insects.

1. We know that malaria and yellow fever are transmitted by mosquitoes. Poliomyelitis being more prevalent also during the warm season, and since we do not know definitely its method of transmission, it would lead one to think that it might be transmitted by flies or other insects.

2. The disease also being more prevalent near lakes, rivers, low marshy lands, dumps, where flies and mosquitoes are most abundant, would favor the insect theory.

3. The fact that the disease occurs in well-to-do people on high lands, in most hygienic surroundings, militates against this theory, as does the existence of winter epidemics, such as reported in Sweden (from November to the middle of March).

INCUBATION PERIOD.

It varies from 2 days to 2 weeks with an average of 10 days.

SYMPTOMATOLOGY.

1. *Prodromal or pre-paralytic stage.* The constitutional symptoms may be very severe or unnoticed. Sudden onset, fever, vomiting, headache, irritability, general hyperæsthesia, lameness, backache, stiffness of neck muscles, profuse sweating, and drowsiness are the most important symptoms. If there can be obtained a history of exposure to the disease, it is advisable to isolate the case. Examination of the spinal fluid will usually help in the diagnosis. During this period retention of urine has been observed in several cases. The sphincter seems to be normal but the wall of the bladder has no expulsive power. The same condition has been noticed in the lower bowel. When a case presents these prodromal symptoms with temporary weakness in the muscles but no paralysis, the diagnosis of abortive poliomyelitis is usually made, especially if there should be another case with definite paralysis near by or in the same family.

2. *Paralytic stage.* Following the above symptoms, usually on the fourth or fifth day, paralysis is noticed. The amount of paralysis does not necessarily depend on the severity of the onset and of course corresponds to the amount of damage to the central nervous system. Since any part of the motor tract in the brain and cord may be involved there are no muscles exempt from paralysis. Just as the paralysis makes its appearance, the acute febrile symptoms gradually subside and the paralysis rarely increases after the temperature has been normal for 48 hours. A few cases at the West Department have shown a sort of relapse (reinfection ?); two died at the end of 10 days from respiratory involvement.

Reflexes. As this is a flaccid paralysis, the reflexes are absent in the affected muscles. The knee jerk is lost in quadriceps paralysis, while the plantar will be normal unless the muscles of the foot are affected. In the bulbo-pontine and meningeal types of poliomyelitis the reflexes are exaggerated. Rarely, a Babinski, active knee jerk and ankle clonus are observed in this paralysis, showing that the *extensors* of the knee and the *extensors* and *flexors* of the ankle have escaped paralysis.

Diagnosis. The diagnosis is based upon the following points: History of exposure, age, presence of an epidemic, a suggestive incubation period, fever, vomiting, headache, malaise, irritability rigidity, hyperæsthesia, shooting pains in the extremities, altered reflexes, drowsiness, and weakness in the limbs. With these symptoms, if the cells in the spinal fluid are increased in number and are chiefly lymphocytes, and if there is increased globulin, the most probable diagnosis is poliomyelitis.

3. *Stage of repair.* This is the most interesting stage to study. At the very onset of the paralysis the central nervous system in many cases seems to be overwhelmed with poisons, and on examination the patient is found to be in a stupor, unable to move a toe or finger, so that the first examination is very discouraging. Soon, however, the toxic effects disappear, the patient is brighter, and gradually the limbs become more freely movable, indicating that those regions of the central nervous system which were only poisoned or compressed are restored to their normal functions. The muscles which remain paralysed show the real extent of destruction to the gray matter in the cord and brain. The reflexes which may have been lost are likely to reappear in a few days.

OBSERVATIONS ON POLIOMYELITIS AT THE WEST DEPARTMENT FROM AUGUST 12 TO NOVEMBER 1, 1916.

During this epidemic a peculiar maculo-papular eruption has been noticed in several cases during the onset of the disease. The first case of poliomyelitis was admitted to the hospital as measles or scarlet fever because of this unusual rash. We have admitted 130 cases. The vast majority were brought into the hospital on the fourth or fifth day of the disease, because, as I have said before, the paralysis is usually noticed at that time and the diagnosis is commonly not made before the paralysis appears. So we have found the temperature nearly normal;

and extension in the paralysis while in the hospital has rarely been observed.

A few cases, showing paralysis of one limb with a fairly high temperature (102–103) on admission, on the next day presented more paralysis. The three most remarkable instances of spread in the paralysis after admission were the following:

1. A girl of 8 years came in with paralysis of the upper left extremity, and remained so for five days. On the sixth day she developed respiratory paralysis and died within twenty-four hours.

2. A man of 30 years who was clinically diagnosed poliomyelitis, with paralysis in both lower extremities. This patient did well for a week and on the tenth day the thoracic muscles became involved and he died in a few hours, showing exactly the same symptoms as several undoubted cases dying of respiratory failure, the heart beating for several seconds after the last respiration. This case was interesting, since the pathologist could not find any lesion in the central nervous system at post-mortem and no other cause of death was found.

3. A boy with paralysis of both legs on admission developed paralysis of the ocular muscles after five weeks.

As a rule, if the patient survives the first five days, he will recover. All but two of the cases that died were moribund on admission and died within 24 hours.

Twelve cases were of the ascending type (Landry' paralysis), and died in a short time from respiratory failure.

Four cases had only a left facial paralysis.

Two cases had only a right facial paralysis.

One case had the left side of the face and the right lower extremity paralyzed. This case showed the long distance which may exist between the two foci of infection.

Three cases had paralysis of the throat with inability to swallow. One of these we had to feed with a stomach tube for over a week. All three cases recovered.

One case had paralysis of the throat, larynx and tongue, also a right facial paralysis.

Several cases showed paralyses of the neck muscles and of either one or both upper extremities.

Several cases presented paralysis of all the trunk muscles; these had paralysis of one extremity as well.

Three cases were of the cerebral type, and died.

Three cases presented paralysis of all four extremities and two of these had paralysis of the thorax as well. These two died during the fourth week, following a gastro-enteritis, possibly as the result of continual, labored diaphragmatic breathing.

The three most remarkable cases were:

1. A boy 6 years of age, showing paralysis of the 7th, 9th, 10th, 11th, and 12th cranial nerves on the left side, also of both phrenic nerves. This child died on the eighth day.

2. A boy of 8 years with paralysis of both lower limbs on admission and during the fifth week developed paralysis of all the ocular muscles except of both external recti.

3. The case which afforded the greatest interest was a boy of 8 who had paralysis only of the muscles of mastication, both sides being equally involved. (Inferior maxillary motor branch of the trigeminal.) As far as I know, this is the only case reported.

The right upper extremity was involved alone oftener than the left upper, and in cases where both were involved the right was much more so than the left. The same thing was noticed in the lower extremities.

Retention of urine was observed in 10 cases. This condition lasted for about a week and was usually followed by incontinence for a few days, which cleared up shortly. One, a young man, 19 years of age, was unable to urinate normally all the time he was in the hospital.*

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* December 14, 1816. Fourteen weeks from the onset he still has to be catheterized.

The lower bowel was paralyzed in four cases; one for 5 weeks with impaction of the rectum.

In five families two cases developed. One family had three cases.

Two cases were treated with immune serum in the prodromal stage, before admission, by the Harvard commission. One developed paralysis in both legs; the other showed no paralysis.

RECOVERY.

Although it is said that Nature starts the process of repair just as soon as the paralysis is completed, in the majority of cases it is hard to notice any appreciable improvement before two weeks. A marked and definite improvement was noticed then in all our cases, and it is surprising how quickly the children, especially, will get back on their feet. Only three cases left the hospital at the end of five weeks without showing some improvement in the paralysis.

WRONG DIAGNOSIS.

The diseases which were mistaken for poliomyelitis and sent to the West Department were apoplexy, spastic paraplegia, alcoholism, Erb's paralysis, ileocolitis, indigestion with covulsions, meningitis, and pericarditis. Two cases were referred as laryngeal diphtheria tube cases and on admission the labored breathing was found to be due to paralysis of intercostal muscles with the resulting diaphragmatic breathing.

PROGNOSIS.

All cases with the ascending type died in a few hours. When the muscles of breathing are involved the prognosis must be very guarded. If the patient survives for 5 days he is very likely to recover. All four extremities may be paralyzed and prognosis as to life may be good. Cases where the cerebrum was involved usually died early with convulsions.

Prognosis as to the paralysis is very undecided, for the worst cases may do well. A gradual improvement has been observed while here at the hospital.

Our mortality is 16.6 per cent.; 15.8 per cent. in children; 28.5 per cent. in adults.

PROPHYLAXIS.

The patient should be isolated, preferably in a hospital. Sunshine and fresh air are the best disinfectants. The discharges must receive proper disposition. One attack usually confers immunity. Immune serum has conferred immunity in monkeys.

TREATMENT.

Absolute rest, good nursing, a nourishing diet, prevention of abnormal contractures and keeping the paralyzed parts warm, are the most important points in the early course of the disease.

Homœopathic remedies. Gelsemium, conium, plumbum, emetin, and arsenicum were the drugs most frequently prescribed.

Experimental Treatment. Twenty cases were treated with immune serum, intraspinally. Twenty cases were treated with normal serum intraspinally. Twenty cases were treated by withdrawal of spinal fluid. Twenty cases were treated by lumbar puncture and injection of their own spinal fluid subcutaneously. Twenty cases have been treated with just homœopathic remedies. No noticeable difference has been observed in the progress of these cases.

SUMMAR.

1. Very little as to the ætiology of poliomyelitis has been discovered so far in the epidemic.

2. The actual means of transmission is yet unknown.

3. The diagnosis is still very difficult before paralysis appears.

4. In our cases we have observed that the right side of the cord is more often and extensively affected than is the left side.

5. All of the motor cranial nerves have, in different cases, been involved.

6. The cerebral type of poliomyelitis has been observed in three cases.

7. The prognosis must be very guarded in cases where the breathing is involved.

8. The four forms of experimental treatment are of no appreciable helpfulness after paralysis has appeared.—*The New England medical Gazette*, January, 1917.

EDITOR'S NOTES.

A Case of "Bloody Tears."

Cases of "bloody tears" are among the curiosities of medical literature. In the *Boston Medical and Surgical Journal* of Oct. 26th Dr. M. J. Konikow has reported the case of a man, aged 50, who had been in good health except for attacks of slight epistaxis. An attck occurred which he and the members of his family could not control by ordinary means and Dr. Konikow was summoned. Blood was flowing freely from the right nostril. An anterior tamponade failed to stop it, merely directing the flow backwards. Complete stoppage was obtained only by combined anterior and posterior tamponades. A few minutes later large "bloody tears" began to run down the cheek from the right eye. Pressure upon the right nasal duct stopped this flow. Of course, the source of these "tears" was the blood that was caught between the tamponades and forced into the nasal duct. True sanguineous lacrymation—i.e., "bloody tears"—produced directly by the lacrymal gland—must be extremely rare, if indeed it has ever occurred. In the Transactions of the Ophthalmological Society for 1890-91 Mr. F. R. Cross reported the case of a female, aged 21 years, who for several years had been suffering from bloody tears coming occasionally from the left eye. Excluding other sourcess Mr. Cross thought that the lacrymal gland was responsible for this phenomenon. Half a century ago Hasner reported two cases of "bloody tears," one in a girl of 13 who showed this symptom during the two years proceeding her first menstruation; the other in a healthy young butcher in whom the cause of the trouble lay in a lentil-sized polypus of the upper conjunctiva.* S. W. Ochapowski reported a case of "bloody tears" which he attributed to the general hysterical character of the patient†—a sufficiently puzzling diagnosis.—*The Lancet*, December 2, 1916.

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* Allgem. Wien. med. Zei schrift, No. 51, 1859, and No. 1, 1861.

† Russky Wratch, 1902, i.

A Bullet Free in the Left Ventricle.

In the present war several cases have been recorded of survival after a bullet had penetrated the heart, and in one at least the projectile was successfully removed from the left ventricle. **But** at a meeting of the Académie de Médecine on Nov. 7th M. Lobligeois reported a case in which complete recovery took place while a bullet remained, and presumably remains, free in the left ventricle. The details of the case, as it is recorded, can only be called surprising. The patient was a soldier who had been wounded several months previously, and was sent to M. Lobligeois to verify the state of the left lung and ascertain whether a projectile existed which the patient always said he had in his chest. He had no trouble of any kind. Radioscopy at once showed, it is said, a shrapnel bullet in the cardiac area, and careful examination enabled M. Lobilgeois to conclude that it was free in the left ventricle. Its whirling movement with each cardiac pulsation was described as characteristic, which would imply that the behaviour of bullets loose within the heart had been studied. At the end of the diastole the bullet rested on the inferior border of the heart near the apex. With the systole it rapidly veered from left to right, following the lower border of the heart, and then evidently encountered the interventricular septum and followed this from below upwards in a vertical line. It thus attained the highest point of the ventricle on its right border at the end of the systole. It rested there an instant and then slowly descended during the diastole from above downwards and to the left so as to regain at the end of this period its position at the apex and recommence the movement. It thus described a right-angled triangle with the right angle a little rounded. The rapidity with which it moved during the systole along the two sides of the triangle contrasted with the slowness of its movement during the diastole along the hypothenuse. M. Lobligeois pointed out that only radioscopy could have disclosed these remarkable phenomena. We hope that the progress of this case is being carefully watched.—*The Lancet*, December 16, 1916.

Intravenous Injections of Antimony in Malaria.

Since 1906, when Nicolle and Mesnil first recommended the use of antimony in trypanosomiasis, this drug has also been used in the treatment of dermal leishmaniasis, ulcerating granuloma, and Mediterranean and Indian kalazar. To Broden and Rodhain belongs the honour of having first devised the method of giving the salt intravenously, a procedure which got over the difficulty of oral and subcutaneous administrations. The results obtained in the different diseases mentioned have been satisfactory on the whole, but the difficulty of completely eradicating protozoal parasites is well known, and in trypanosomiasis, at any rate, relapses have not been infrequent even after several courses of antimony injections. Great success has followed intravenous injections of tartar emetic in that intractable form of ulceration known as "ulcerating granuloma of the pudenda," and what is known as dermal leishmaniasis in South America has also reacted very favourably. Following up these discoveries many different authors have employed such injections in kala-azar, the results obtained having been much better than by any previous method of treatment. In a paper published in this issue of the JOURNAL Sir Leonard Rogers records a series of interesting observations on cases of malaria treated by tartar emetic injections. In two of these the injections caused crescents to disappear from the peripheral blood, and in another benign tertian gametes disappeared. Should it be proved that injections of tartar emetic will sterlilize cases of malaria a great advance will have been made even on the quinine method, but as Rogers indicates, a good deal more work and the lapse of a longer time will be needed to determine this point. The disappearance of the gametes alone will not, of course, effect a cure, for the active asexual forms must also be acted upon and killed off. New drugs have from time to time been brought forward for the treatment of malaria; in fact, there is a French one on the market now called "diemenal," a solution of colloidal manganese, which is said to cure malaria much more effectually than quinine, and also to prevent relapses. Time alone will show if such a claim is well founded, and the same must be said of antimony. Rogers's observation is interesting, and may prove to be very important. The results of his own further observations will be awaited with interest, and doubtless the publication of his preliminary note will stimulate others to put this method to the test.—*The British Medical Journal*, January 6, 1917.

The History of Prosthesis.

Dr. Fielding H. Garrison, of the Surgeon-General's Office at Washington, has published in the *Military Surgeon* a periodical published by the Association of Military Surgeons of the United States, an historical review of prosthetic appliances for the relief of mutilations suffered in war. Amputation, he believes, was seldom done in antiquity, and he notes that among the two hundred and fifty wounds mentioned by Homer with a mortality of 75 per cent. there was not a single instance of loss of limb. There are no pictures of artificial limbs on the walls or painted vases of Pompeii. Ceres figures as the founder of prosthesis in Virgil. In the third book of tho *Georgics* she is said to have made an ivory substitute for the shoulders of Pelops, the son of Tantalus. Hegesistratus of Elis, when captured by the Spartans, is said by Herodotus to have cut off the foot by which he was chained and replaced it with a wooden one. The elder Pliny tells of the great grandfather of Catiline, Marcus Sergius, who lost a hand in the second Punic war and made himself an iron one in its place. Fucian, who lived in the second century of the Christian era, tells of a rich man in Asia who had lost both feet from walking a long distance through snow and who had them replaced by substitutes made of wood. In the Middle Ages enourmous loss of limbs was caused by leprosy and ergotism, by the torturer and the executioner, and by artillery, which was first used at Crecy in 1346. For a long time there were no crutches or artificial limbs, stumps being bound up in wooden splints, while cripples propelled themselves on movable benches. The first appearance of the iron hand is said to be in a picture of falconry, dated about 1400. The most celebrated is that of Götz von Berlichingen, the hero of Goethe's drama, who lost his right hand at the siege of Landshut in 1504. Several of these iron hands are still in existence; they have pressure buttons with movable joints and figures, allowing closure of the hand. About 1540 Ambroise Paré made a wooden leg for a locksmith of Lorraine. In 1755 Hugues Raventon, a French army surgeon, made for a dragoon a sort of leather boot with metal shafts, which enabled the soldier to serve through the last three of the Seven Years' War. In 1761 a mechanic named Laurent made for a soldier an artificial arm with which the man could eat, drink, take snuff, doff his hat, and even write to the king for a pension. Benjamin Bell gives illustrations of leather arms and hands with metal jointings and appliances for holding table appliances and pens, made by Gavin Wilson, an Edinburg mechanic. The Napoleonic wars, in which there was much amputating—Larrey alone lopped off two hundred limbs in a day—gave a great stimulus to the devising and improvement of artificial apparatus. The war of 1870-71 supplied inspiration to many inventors, and the developments in prosthesis of all kinds brought by the present war would already furnish material for a large volume.—*The British Medical Journal*, January 20, 1917.

Death after Salvarsan.

BY

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I am much obliged to the Director Medical Services in India for permission to publish the following case, and to Captain P. Hayes, R.A.M.C., for comments:—

A sepoy, K—, aged 23 years, was admitted into hospital on May 22nd, 1916. He had a chancre on the penis about six weeks before, which healed under treatment. There was nothing important in his past history. He was thin and somewhat anaemic, and presented a typical secondary rash on the body, with mucous patches in mouth and general adenitis. Nothing abnormal was detected in the chest and abdomen and the urine was normal. A dose of castor oil was given and he was kept on milk diet. Salvarsan 0.5 gram was given intravenously at 10 a m. on May 23rd. He had a good deal of vomiting and diarrhoea, and rapid, feeble, but regular pulse during the day, and was rather restless during the night. Next morning the vomiting had stopped and the pulse was stronger. He had five motions during this day but no vomiting. On May 25th the pulse was almost normal; the urine showed a fair cloud of albumin. On May 27th he was all right but weak.

On the morning of the 29th he was deeply jaundiced; the stools contained bile; the urine contained traces of bile and albumin. He was given calomel 3 grains. followed by magnesium sulphate ½ oz. three hours later, and was ordered milk diet.

On May 30th it was noted that he had had no sleep during the night; he had passed five motions, all containing bile. The liver was enlarged and tender; the spleen was not palpable; the pulse was regular but weak, the temparature normal. He suffered from hiccough.

On June 1st the jaundice was deeper; the motions were loose, and contained bile; the urine showed traces of bile and albumin, but no casts or crystals of leucin or tyrosin. Emetine hydrochloride 1 grain was injected hypodermically on May 31st and June 1st, once on each day.

On June 3rd his condition was becoming worse. The temperature was 99° F., and the pulse 70 and feeble. Jaundice was the same, and the liver was still enlarged and tender.

Blood examination showed nothing abnormal. On June 5th the condition of the liver, stools, and urine was the same, and jaundice was still present. The pulse was 74, and feeble; the heart sounds were weak, but there was no murmur; nothing abnormal was detected in the lungs. The rash had faded a little, but the ulcers in the mouth and on the lips were worse. He was kept on milk, bovril, and brandy, but his general condition became worse, and at 5 p.m. he collapsed and died. *Post-mortem* examination was not allowed.

Two consecutive doses of 0.5 gram salvarsan from the same stock were given by me to another sepoy at an interval of three weeks; he had diarrhoea, vomiting, and feeble pulse for two days after the first dose, but very slight reaction after the second dose.

The interest in the case here recorded lies in the long period between the admidistration of the salvarsan and the manifestation of toxaemia The symptoms would suggest acute yellow atrophy or phosphorus poisoning, but both are negatived by the fact of there being enlargement of the liver throughout, and also as to the former by the absence of leucin and tyrosin in the urine.

There must have been a storage of arsenic in the liver, giving rise in all probability to acute fatty degenerative changes in the cells.

Captain Armstrong, I.M.S., who has kindly looked up the literature on the subject, says that three similar cases have been recorded, in one of which a necropsy was performed. This was a woman who was given three doses of salvarsan at an interval of nine days without any untoward symptoms. Three or four days after the last dose she developed toxic symptoms, diarrhoea and vomiting, jaundice, enlargement of liver, and severe abdominal pains and died. *Post-mortem* examination showed diphtheroid necrotic ulcers in the intestines perforation of the stomach, and acute fatty degeneration of the liver.—*The British Medical Journal*, January 6, 1917.

The Treatment of Burns by Paraffin.

By Lieut.-Colonel A. J. HULL, F.R.C.S.,

Royal Army Medical Corps.

Dr. Barthe de Sandfort introduced a treatment for burns by means of a preparation of paraffin which he called **ambrine.** The treatment consisted in washing the burns with sterile water, drying, and painting or spraying a layer of ambrine over the surface. The surface was then covered with a thin layer of wool, and a second coat of paraffin applied. The paraffin solidifies almost instantaneously, and a thicker layer of wool and a bandage are then applied. The paraffin preparation, ambrine, is a secret one, and the property of the Ambrine Company, Paris.

Observations of Dr. Barthe de Sandfort's treatment, and experiments with ambrine, carried out in a military hospital, gave one the impression that the treatment was valuable. Burns healed with rapidity; constitutional symptons rapidly abated; pain was reduced to a minimum; scarring appeared to be obviated, or at any rate was not apparent. The need for grafting large burn appeared to be avoided. The burns healed so rapidly with healthy granulations that there appeared to be nothing to be gained by grafting. The patients were singularly free from sepsis. The conclusion arrived at from experimenting with the ambrine treatment was that mild burns healed with singular rapidity, and severe cases recovered which would have been unlikely to recover by the ordinary methods of treatment. Observers who had had large experience of burns treated by picric acid, ointments, and other methods in ordinary use, were unanimously of opinion that the paraffin method was superior to the older methods. The experience of those who had witnessed the results of burns after liquid fire attacks was that the ambrine treatment would save many lives, and accelerate the recovery of all burns.

A preparation resembling ambrine may be produced by impregnating hard paraffin with a small quantity of tar. The substance is not in very good solution, and falls to the bottom of the paraffin when the wax is heated. The excellent results obtained would therefore appear to be due to mechanical causes. The protection of the burn from the air, the protection of the newly-formed granulations from damage, the splint-like effect of the wax in holding the damaged tissue immobile and at rest, appear to be the attributes which produce the effect. The heat of the applications and the conservations of heat to the surface may encourage the lymph flow, determine the supply of blood to the new capillaries, and favourably affect healing. The relief from pain and rapidity of healing are due to the fact that the burn is held at rest in a plaster-like cast of paraffin, and suitable nidus in which the epithelium will proliferate is provided.

The absence of scarring depends upon the fact that skin can be reproduced in two ways First, by direct proliferation of the epithelium in the depth of the wound. This method of healing is only possible in wounds of the first and second degrees, which form the vast majority of all cases of burns coming under treatment. Secondly, by the extension of the epithelium from the edge of the wound in cases of burns of the third and deeper degrees. These burns are comparatively rare and are the only cases suitable for grafting The effect of the paraffin in the first class is to protect and stimulate the growth of epithelium, islets of which can be seen growing over the base of the burn. In the second class the epithelium spreading from the edge is protected and stimulated.

The first point to be determined was whether equally good results could not be obtained with commercial paraffin, section wax, or similar pure hard paraffin. The ambrine preparation has peculiar and valuable mechanical properties. It has a lower melting point than ordinary section wax, is much more plastic when cooling and has not the tendency to crack which ordinary hard paraffin has. It also adheres well to the skin and is not liable to slip after a dressing is applied.

Hard paraffin is not a suitable application in its raw state; it lacks the mechanical properties of ambrine; there is an absence of the flexibility and adhesiveness which ambrine possesses. I found that if hard paraffin of suitable melting point be subjected to a temperature of 130° C. by means of superheated steam, the melting point was reduced about 2° C., and the hard paraffin now possessed the mechanical properties of ambrine The therapeutic value of ambrine appears to be entirely mechanical, and I suggest that the processes of impregnation with tar or other substances are associated with the application of superheated steam, and that it is this superheated steam that is the essential process in its manufacture. The clinical results of the application of hard paraffin—treated with superheated steam—to burns appear to me to be indistinguishable from those of ambrine.

Better results are obtained by the addition of certain antiseptic and stimulating substances The wounds become clean more rapidly, pain is decreased, and the offensive smell associated with the ambrine dressings is avoided, and the burns heal more quickly. It was found necessary to change the treatment of sluggishly healing burns treated by ambrine to a paraffin containing and antiseptic. The change was always beneficial. The argument that an antiseptic will destroy the saprophytic action of bacteria and will retard the treatment has not been borne out by clinical experience.

It is unnecessary to describe in detail the various exprimental preparations. Laboratory experiments were made with a view to impregnating paraffin with various antiseptic substances—resin, essential oils, and tars. Experiments were made in order to produce a paraffin possessing the requisite melting point, plasticity, and adhesiveness. Cases were treated in the burn wards with various experimental preparations Tar preparations were at first used; paraffin impregnated with oil of eucalyptus proved more efficacious In order to obtain a painless treatment experiments were made with paraffin preparations containing analgesic substances Potassium sulphate was used in one successful preparation (No. 4 paraffin), but was discarded as unnecessary in later preparations. After progressively improved results, a paraffin was finally arrived at having the mechanical properties of ambrine and containing a small amount of antiseptic. This is now in routine use known as No. 7 paraffin.

The results obtained by the use of No. 7 paraffin have surpassed the results obtained by ambrine or any other tried preparation. Severe burns of the third degree, accompained by sloughing, and in a very septic condition, have cleaned and taken on healthy repair under this treatment, after a trial of the ambrine treatment. Severe burns of both palmar and dorsal surfaces of the hands, extending to the tendon sheaths have healed in three weeks without contracting cicatrices. Extensive burns of the flexor surfaces of the limbs, the regions most likely to be altered by contracting cicatrices, have healed without apparent scarring. Burns of the face heal with a new healthy skin without scarring.

Severe burns due to cordite, petrol, and liquid fire have been healed with this preparation; there have been no untoward results.

Patients who have been admitted with septic burns of extensive areas have rapidly recovered from constitutional symptoms, the temperature usually becoming normal in a few days.

The treatment is practically painless, and patients rarely complain of pain after the first application. It has never been found in the least necessary to give an anaesthetic for the first or subsequent dressings. The rapidity of healing, the absence of sepsis or pain, the healthy new skin resulting, without contractile cicatrices or deformity, have been really remarkable. Burns become clean more rapidly than under ambrine treatment. Sloughs of deep tissues, in some casses down to bone, readily separate, and the burns become clean.—*The British Medical Journal,* January, 13, 1917.

CLINICAL RECORD.

EXCERPTS FROM THE CLINICAL OBSERVATIONS OF DR. AD. LIPPE.

Edited by S. L. GUILD-LEGGETT, M. D., Syracuse, N. Y.

CASE I.—Miss P., 30 years, in robust health, after a variety of self-administered medication, for a cold, applied for a prescription, after five days.

Severe pains, root of nose pressing downward; nose entirely closed; unable to breathe through; *great desire to blow*; mucous rales in upper passage, with tingling, which is unable to relieve with a sneeze; loss of smell and taste; aggravated after 5 P.M. Cannot lie down because of a sense of suffocation; while sitting up at night, if dozes, wakes with a sense of suffocation.

Kali bi. and *Lach*, were given without good results. *Sticta pulm.* 30, six pellets one-half glass of water, one tespoonful every two hours, was given through the ninth day of her suffering. After the fifth dose a decided aggravation of pain and pressure over the eyes and at root of the nose. In twelve hours there was slight discharge, she began to breathe and smell. In left nasal passage, then in right, her sleep returned and in two days she was quite well.

CASE II.—During the winter of 1866 a number of children ages from one to four years, were attacked with following symptoms: *Waking after midnight*, with loud, *barking* cough and hoarseness, which continued for an hour, or longer, with *sneezing during* and at the *end of the paroxysm*. The nose runs water, and there are, at times, two or three attacks between 1 and 7 A. M. During the daytime the children are well and cough but little. *Rumex* 30 cured every case, improvement beginning the second morning.

CASE III.—Mr. A., 50 years, on the tenth day of cerebral typhus, at 11 P. M., had sudden attack of pain, extending from the left kidney to the bladder, continued ineffectual urging to urinate, great nausea and much excitement. The attack had lasted two hours with increasing violence and no relief from hot applications.

I gave four pellets of *Nux vomica* 50 M. on the tongue, with immediate cessation of pain, a restful sleep, and no more medicine until 48 hours later, when the pain returned. The same medicine gave relief in about 10 minutes. Thirty-six hours later an attack in the forenoon after difficult stool, without nausea or urging to urinate. The pain was then deeper seated and continuous. *Lycopodium* 10 M., 6 pellets dissolved in a spoonful of water, was given with gradual relief, in about an hour, with no return. The patient fully recovered without further medication.

These facts show that the highest potencies act in the most acute cases, but no permanent cure can be expected if the *best indicated remedy causes immediate cessation* of the *symptoms* of a *grave disease*, (Italics mine.—ED.)

CASE IV.—A child, one and one-hlf years old, wakened at 11 A. M. with violent cough: continuous vomiting of mucus; forehead and face covered with cold perspiration; face feels and looks like white marble; hands and feet cold; prostration.

One dose *Veratrum alb.* 34 M. relieved cough very soon, child fell asleep in half an hour, slept six hours, waked *well.* Later it is found the child had eaten, the day previous, a large quantity of ice cream.

CASE V.—Mrs. S., aged 63, in January. At midnight was attacked with violent colic and diarrhœa. stools watery, black, offensive. She took *Camphor* and *Laudanum*. Seen at 9 A. M., face showed great suffering; frequent vomiting within the hour; stools every 10 or 15 minutes; pains intolerable, navel as if *drawn with a string to the spinal column*, and pulled tighter every moment.

One dose of *Plumbum* 200 cured the case, and she could attend her duties the following day.

Case VI.—Mrs. P., 56 years, invalid for twenty years, violent pain in os coccygis, which prevents sitting; causes her to lie on side; greatly aggravated by touch; exceedingly nervous and restless with increase of pain, specially at night; red, hot cheeks every P. M. till after midnight; with < pain uterus, bearing down, and < of pain and soreness in os coccygis.

Other remedies having failed, Symptom 125 (vide Hahn. Monthly, Vol. I., No. 4) induced me to give *Cistus Canadensis* 30, which relived. The symptoms returned alternate days. A week later 200 was given, which caused increased congestion to head, almost sleepless night with restlessness and nervousness, and was followed by continued improvement for thirty days.

Case VII.—A man, 40 years, bruised left hand, without leaving a mark. The lymphatics swelled in a large string, extending to axillary gland; the swelling was dark red, very painful, especially to contact; he could neither sit still nor lie down; wearing arm in a sling and walking about gave some relief.

One dose of *Bufo* 200 cured him in forty-eight hours, without trace of swelling or redness remaining. Had prescribed *Bufo* in similar conditions, with same result. Indications are found in Hencke's valuable provings.—*The Homœopathic Recorder*, October, 15, 1916.

AN UNUSUAL WHOOPING COUGH REMEDY—SAMBUCUS NIGRA.

Reported by Russel C. Markham, M.D., Marquette, Mich.

I have been in the practice of medicine since 1881, and during all this time I have never had occasion to use the remedy I am about to report for whooping cough.

Just when I gained the knowledge of the remedy, filed it away in a memory cell, indexed and cross-indexed it, I cannot say.

But when I sat by the bedside of a little five-year-old boy and saw him struggle for breath, throwing himself from side to side on the bed, face dark purple, bathed in sweat, labored asthmatic breathing, with intense dyspnœa, wheezy, dry spasmodic cough, evidently painful for he resisted it all he could, the remedy that matched these symptoms flashed itself before my consciousness, and the sickest little chap I have ever seen with whooping cough is to-day (the fourth day) up and dressed and playing with only an occasional cough, no whoop.

I hardly need tell the careful prescriber that *Sambucus nig.* was the remedy.

During the three days, while under observation, he had but five doses all told of the 2 c. potency, Dunham.

He desired nothing to eat during the three days until the close of the third day, when he was given half a glass of milk and a small piece of toast, which he ate with a relish.

(We have learned not to urge food until there is a demand for it in the critically ill.)

The case was seen for the first time the night previous to giving *Sambucus,* though he had been sick for two weeks. At this time he had a croup, tight cough and was restless. *Aconite* was given but did little if any good, for the reason that a more careful taking to the case in the morning showed *Sambucus* to be the only remedy that covered the totality of symptoms.

Within an hour after getting the *Sambucus* he was better in every way, and gradually the symptoms disappeared as reported above.

From a very dangerous condition this child passed safely, speedily, pleasantly into comparative health *within four days,* thanks of *Sambucus* and our most wonderful law.

This case is not reported to champion *Sambucus* as a remedy that will often be indicated for whooping cough, but rather to illustrate that the "indicated remedy" will cure desperate cases when prescribed homœopathically.—The *Homœopathic Recorder,* December 15, 1916.

Gleanings from Contemporary Literature.

THERAPEUTIC PROBLEMS AND POSSIBLE ANSWERS.

By Charles Edwin Wheeler, M.D., B.S., B.Sc. Lond.

Physician to the London Homœopathic Hospital,

President of the British Homœopathic Society.

(Continued from page 44).

Taking these drug experiments for valid then we can see that the power of cure in some of our agents may lie in their ability to increase definite resistances. But, again, is this to be presumed to show close resemblance between disease toxin and drug so that each will affect the body similarly? A vaccine has undoubted close affinities to the toxin? Where the drug tincture is complicated, chemically as vegetable tinctures are, a negative answer cannot be peremptorily given. But is it conceivable that an elemental remedy like phosphorus or a simple compound like sulphide of calcium can be closely comparable to a toxin? We must find a better answer to the problem. Here is a hint. Some forms of phosphorus appear to encourage the formation in the body of a lipolytic ferment attacking fat. The tubercle bacillus is said to have a fatty envelope of protection. Is the remedial action of phosphorus by way of this mechanism, indirectly causing the destruction of the protection of the tubercle bacillus, shelling the trenches as it were (how horribly all our metaphors nowadays turn on war), leaving them exposed to the phagocytic attack! Though phagocytosis is not, I believe, held to be a very essential part of the anti tubercular defences, this explanation would also account for the effects of phosphorus on the opsonic index to tubercle. But if, remembering all foregoing statements, we follow this clue, we are led to some such general conception of body resistance as this. There is a general mechanism of defence valid against all bacterial diseases. Specific bacteria may require (probably usually do require) specific additions or modifications, but the general mechanism is central and responsive. The additions or modifications will depend on a variety of ferments or hormones, and these again will be produced by a variety of tissues, upon which conceivably remedies act, as we may imagine baptisia to influence the cells that produce typhosus agglutinins. But the chemically simpler remedies probably are concerned with the tissues that manufacture the general resistance bodies common to all infections and these will almost certainly be found to be wholly or partly the larger ductless glands. Here, again, there are probably several tissues concerned. We associate diabetes with certain pancreatic deficiencies, and note that there is in that disease a simultaneous lack of resistance to ordinary germs of suppuration; but we need not suppose, therefore, that pancreas *alone* is concerned with the antibodies for these germs. The important point is that the moment we recognize that antibodies are probably the result of the activities of definite tissues, our existing knowledge of drug tissue affinities makes easy the conception of influence executed by the drugs upon the cells. We are, in fact, after setting it aside to begin with, back at the Schulzian formula of tissue stimulation and can now see how our remedies may influence by this channel apparently complicated processes of body resistance. The similarity of symptoms between drug-proving and disease is still puzzling. Perhaps many disease symptoms are (as has often been suggested) really body resistance symptoms, necessary concomitants, though perhaps not always desirable ones, of increased antibody production. The appropriate military metaphor would be the need to destroy one's own villages by artillery if occupied by the enemy. If this be so then the drug given to the prover, increasing antibody production, might bring about symptoms to correspond, the more readily that the increased antibody is not in this case wanted.

We know beforehand that we have drugs that will affect *some* internal secretions. Iodine certainly acts on thyroid, plantinum probably on ovarian tissue, chelidonium, and many others on liver and so forth. But as soon as we grasp the conception that we may be able to influence internal secretions we find also that we are claiming to influence one of the most profound of all life mechanisms. Whatever the future has in store for us in medicine it is a safe prophecy that an increasing knowledge of these secretions will be a large part of our gains and if the ghost of Edward Blake could revisit the glimpses of the moon he might well smile at the memory of his pioneer work and the neglect, even the occasional scorn, that greeted it.

In so complex a way do these secretions act and interact that the power to increase or decrease one or other, if we can be assured of it, means the power to deal most profoundly with disease. The Schulzian law shows the way to influence tissue, the Hahnemannian method shows the way to discover tissue relations to drugs. Here there is a road for us to explore. Future provings should always be considered from the point of view of possible effects on ductless glands, but until some method of measuring them relatively is devised we cannot get very far with direct experiment. Blood-pressure is, no doubt, related to adrenalin supply, but it would be unsafe to conclude at this stage of our knowledge that it could be taken as an index to its relative abundance or deficiency. That hint, however, suggests the kind of investigation that may become increasingly important. But even with the material at presant at our disposal there is much work to be done. Drugs that affect internal secretions thereby affect a machinery so central and important that they must tend to be characterized by well-marked "general" symptoms as distinguished from "particular" ones. It can hardly be doubted that the line of attack of the chronic disease remedies is along this road. Consider first what complexes of symptoms will clear up in successful cases after the use of one remedy, and consider next the extraordinary phenomenon (for it is no less) that drug and disease should develop often quite a number of similar curious, inexplicable symptoms; consider why the occurrence of one or two among these "queer" symptoms, characteristic, say, of sulphur, should nearly always be accompanied by several other sulphur symptoms, till we are forced to conclude that there is a central mechanism from which this complex of symptoms, queer and not queer, alike proceeds. Then what can this central mechanism be but that of the interlocking internal secretions? But if we are right in this assumption, then we should at once take the well-marked classical symptoms both of excess and deficiency of secretion for such ductless glands as we can and work them out symptomatically for remedies. Those that came out well might be for working purposes assumed to influence the corresponding glands fairly enough to be used as a basis for further experiment. In working out these hypothetical cases there would be as much or more value in the minor excesses or deficiencies as in the major and symptoms of both should be considered. A beginning has been made in this work I understand by a distinguished Belgian homœopathist, Dr. Mersch, who honours our country at this moment by his work, but it is as yet unpublished. If I am rightly informed what he has done is significant and full of promise.

While on this theme may we not find in the much-discussed modalities a valuable line of research? Can we relate these reactions to heat and cold, and wet and dry to this internal secretion balance and interplay? Remembering Loeb's work on Ecology, and the stress he lays on external conditions as affecting evolutionary species development, may we not consider that excesses or deficiencies of heat and cold and moisture have all had to be met and countered by the species, and that there must be a mechanism for meeting them individually. And for such resistances we are driven finally to invoke these hormone mechanisms even though their mode of action is so largely unknown. If this be a sound conception then failure or excess of secretion might show in exaggeration of response to one or other of these external conditions. Certainly deficient thyroid patients tend to the chilliness characteristic of calcarea or arsenic and excessive thyroid patients to the dislike of heat characteristic of lachesis, or sulphur or iodine.

Thus by a roundabout road we return to the tissue response to stimuli as the best explanation of the action of our remedies —whether by way of direct local action on a tissue struggling with disease or by way of influence on the amount or quality of an internal secretion which is the secretion of a tissue and affected through the cells of that tissue and the influences thereon. Nor would it be fair to call this speculation the explanation of the unknown by the more unknown. Arndt's law of protoplasmic reaction is a fact. The relations of drugs to tissues are facts, the influentces of internal secretions are facts. The latter need indefinite expansion and clarification but our speculation does no more than link in a casual chain groups of undoubted realities, and for the many gaps and doubtful and difficult places we look to time and laborious experiment and observation. Last, but by no means least to clinical observation and record of cases and this every physician can give if he will.

I amuse myself by thinking that in this speculative explanation I make a road of reconciliation for Dr. Hughes and Dr. Kent. If

Dr. Kent was really seeking in chronic diseases for remedies to stimulate gland tissues (and he may have been doing that, however rightly he rejected morbid anatomy, as we as yet know it, as a guide), then he was no less than Dr. Hughes founding his choice of remedy on its effect on a specific tissue. Dr. Hughes was right in his idea but too early in its application. Behind the inflamed lung we read a lowered resistance to pneumococcus. Behind the lowered resistance we have come to read a humoral defect, and behind that it may be a glandular defect and give, like Hughes, a remedy based on a regional pathology, but now a pathology sublimated and extended; and Dr. Kent's showing that there was more in homœopathy than mere dependsnce on gross morbid anatomy may have shown the road to the more sublimated conceptions. And high and low potencies may here find their explanations too. When we are dealing with direct stimulations of diseased tissues we shall need lower potencies, but the higher may well be enough to touch the gland which controls possibly a morbid stage of extraordinary apparent complexity: and if it is enough then it is best, for why give more than enough, even though, as William Blake, put it of more spiritual concerns, you cannot know what is enough unless you know what is more than enough.

In any clinical work done henceforward we want more and more records of the effects of our drugs on the measurable reactions. Agglutinations, opsonic measurements, coagulation times, Wassermann reactions, blood-pressure records, out of the accumulation of these will come much of the material by which to answer "Yes" or "No" to these tentative speculations, and if "No," then the work so done may well at once suggest a more profitable theory. Our views are only true in so far as they "work" and such medical pragmatism is, I hold, praiseworthy.

I have not, however, quite done with the subject of drug action yet. When we come to look for remedies that correspond to excess or deficiency of internal secretions we may find paradoxically that the same drug is "similar" both to excess and to deficiency. We shall, that is to say, be "up against" the familiar but always puzzling phenomena of primary and secondary actions. To make any plausible explanation of them we have to consider no longer the tissue but the cell, the protoplasmic unit, and consider once again the phenomena of stimuli and responses to stimuli. Stimuli, we say, "influence life activity"; the life activity finds its expression in a characteristic fulfilment of function; cells are specialized to secrete or contract or support or conduct impulses or whatever it may be. All functions fulfilled are evidences of life activity and the stimulus that reaches any cell shows its effect by modifying the specific cell duty, not by imposing a new duty on it. When we probe further into mechanisms we find that, speaking very summarily, the life of a cell consists in a continual chemical building up of some substance and the periodical breaking down of it to ensure, it may be, a muscular contraction or a gland secretion. The fundamental conception of life is, of course, a perpetual flux, a ceaseless building up and breaking down, so that protoplasm is constantly becoming and being remade, and this is true of all protoplasm, but in addition, as it were, specific cells have specific functions, and the fulfilment of these means a chemical upbuilding and a periodical "discharge." Now either half of this duty can be affected by disease and cells may either build up persistently and be unable to let loose the product, or break down so violently that there is no longer (as is usual in health) any reserve of material, and the very existence of the cell becomes threatened by the effort to keep pace with the breaking-down process. In either case we have a disturbance of function; but what is at first sight odd is that the same remedial agent should be capable now of restraining excess now of encouraging the cell to make good a deficiency. In the provings we note these primary and secondary effects and readily explain them there as, shall we say, "exhaustion phenomena," diarrhœa followed by constipation, tonic spasm by paresis, and so on. Whether disease shows primary symptoms or secondary symptoms if the indications are good the drug will cure, and that not by substituting one set of symptoms for the other, which would be no real cure, but by a return from either extreme to the normal. It has been suggested that primary and secondary symptoms should be met by different potencies, but in my experience I cannot find evidence of a guiding rule of this kind to follow and have come to believe that when well-marked symptoms are present the drug may be successful in any potency, under whichever heading the symptoms fall. I find more illumination in remembering the phenomena of fermentation. Ferments are of intense interest to the homœopathist: they act in infinitesimal quantities, they produce remarkable effects with little apparent expenditure of energy, and they are reversible in their action. Yeast cannot only break sugar into alcohol and CO_2, but synthesize sugar out of alcohol and CO_2.

Now cell activities are almost certainly largely conditioned by ferments, at least it is no strain on scientific imagination to conceive of activators of body processes of this kind. Where these activators came from we will leave undetermined. Sometimes at least they come from ductless glands, perhaps always; but taking their place of origin as undecided, let us conceive of them as governing that process of building up and breaking down in cells which we find to be the invariable concomitant of their life. Having got so far, it is a short step in view of the characteristic reversibility of ferments, to conclude that one ferment (and not two) regulates this life activity and to believe that the drug that causes modification of the activity (thus producing symptoms) does so by affecting the amount and quality of the ferment Does the drug itself act as ferment? Conceivably, yes The phenomena that follow the use of colloid metals for instance suggest many analogies to ferment action and in chemical reactions colloid metals can now and then act in a similar way. But the ferment must naturally be produced somewhere and the drug may have its action at the source of production.

For the moment it matters not to leave this point also undetermined. Given cell activity and a ferment to regulate it in health we can figure the process as a pendulum swinging rhythmically to and fro and not surpassing a certain point either way. By disease the pendulum may be pushed too far to one side, but whichever side it inclines to the fault lies in the one ferment, the pendulum itself, and a remedy which by the hypothesis affects the ferment may avail to correct the disturbance. Pursuing the analogy—the pendulum (the ferment) is caught to one side and unable to swing as it should. The drug taps the pendulum and loosens it from its catch, whereon with a little perturbation it returns to its normal swing, and the drug will tap it whichever side it is caught on, for all it does is, as it were, to tap the pendulum, and the results of the tapping depend on the precedent condition. The analogy may be conveniently used to illustrate aggravation when the pendulum is tapped too hard and driven further into the hindrance to its movement and the need of care in repetition of the dose, for once the pendulum is free it returns readily to its normal swing and is none the better for further interference. In a proving the pendulum is knocked excessively far, first one way and then the other, beginning probably with an exaggeration of the movement that corresponds to the breaking down process, for it is in the breaking down that the life finds its expression, and all life responds to stimuli with more expression when it can.

This is true psychically as well as physically, and modern psychology finds much fruitful development from the consideration of psychical and mental "opposites." Indeed modern psychology should find much that is helpful in homœopathy, and we ourselves should learn much from the conclusions and speculations of the psychologists.

One further word and I will make an end. The influence of a drug on a cell, even when remedial, does (it must never be forgotten) add no whit to the life force of the cell. All drugs are cell poisons, modifying cell activity, thereby promoting recovery from disease, but at a cost in cell life that has to be paid out of life reserves and made good subsequently. When I was experimenting with yeast and the effects of drugs on it I found that yeast which was stimulated by drugs to greater CO_2-production multiplied actually less quickly than yeast not so stimulated, although its obvious life activity seemed greater. The drug effect was at the expense of the protoplasmic increase. These experiments need repetition and further development, for with bacterial growth I seemed to get an actual increase in rate of multiplication by small doses of poison. Nevertheless, I think the yeast experiments probably hold a truer analogy to the cells of our bodies. We therefore in disease should use the very smallest quantities of drugs that will serve our turn, for with every drug we are making demands on the bank of life. In all curable disease there is a sum at this bank upon which we can draw to meet an emergency and successful treatment often consists in so drawing. But the payment is not a gift but an advance, a debt to be repaid, therefore should we draw as little as possible.

On a narrow foundation of knowledge I have erected a cloudy building of speculation whose chief (or only) value lies in the more vivid realization of the basic facts on which it rests. But experiment and observation can widen the foundations and deepen them till a more solid superstructure is possible than this speculative one of mine. Observation and clinical experiment is within the reach of us all and I hope that at least I may have encouraged this Society to give what it can of both. If the first reward of our new efforts be to upset my tentative suggestions nothing will be hurt but my vanity, and I would gladly sacrifice even my vanity to gain some significant contributions to our knowledge. We need work from men who have a belief in the truth of Homœopathy—we must cultivate our garden even though the majority as yet despise its fruits. There is no one of our body who has not made definite sacrifices for our common faith. Medical solidarity is not lightly broken by us and we are constantly reminded of the drawbacks and penalties of our position. But if Homœopathy owes us something the debt is by no means all on one side. Do we owe nothing to it? Its practice has given us weapons for our warfare with disease more potent than we should else have had and by helping us to greater efficiency has no doubt increased our personal prestige, even our worldy success. And there is value in the backing even of a minority when that minority is, as ours is, inspired by the fraternal feeling that the good of one is the good of all. Shall we not then pay in a little more labour, a little harder thinking, a little more profound study for these gifts to us of our cause?

It is true that temperaments and capacities differ. I can imagine men, whose honesty and courage are beyond question, saying that in view of the developments of medicine during a hundred years they doubt if Homœopathy adds more than a small fraction to their professional value. If convinced of this, they may well think the price of isolation too high, and if, so thinking, they leave us, we can but wish them God speed. But I am more and more convinced that the man to whose value homœopathy adds but a small fraction fails to use it as it can be used and is neglecting much of its resources. It has happened that of late we have had some recruits whose experience of orthodox practice (with all its modern resources) has extended over years. Ask them if they consider that Homœopathy adds but a small percentage to their value as physicians and I have little doubt what answer will be given.

The stout ship of Homœopathy has endured much buffeting of sea and storm and come safely through. Surely we are not deceived in thinking that we see through the haze the harbour where we can unload our treasures with full recognition. To me the men are blind who cannot see the stars in their courses fighting for Homœopathy if not for homœopathists We may say that the great fleets of the dominant school seem to be taking at last a route much like ours to the haven which they too desire. They will not bar our entry: that fear is surely ended. They may ignore us, may depreciate our goods, but is that a sound reason for scuttling our ship and salving such fragments of its cargo as we can on some crazy rafts in the hope to pass in with the lordly fleet as part of its real following? Rather let us fly our own flag, bring our own ship to port ourselves, adding our own store to the general welfare, content to let its value be found in the use of it. Rats leave the sinking ship, it is said, but men sail her to the last, and our ship is not even sinking.

We live to-day in a carnival of death, and it is, for greater horror, the young who die. All Europe over, the young are giving not only their courage and devotion, but the fresh vigour of the future, the keen brains, the subtle minds, and the skilled hands that should have carried the art of living—so difficult, so toilsome—a stage further towards completion. We, the older men, give love and sorrow, memory, hope and faith, and many do and must faint from the giving, but these lads give life, the sap of the world's young leaves, and a premature autumn shakes the boughs of the tree bare. Then we, who cannot now give as the young are giving, "red fruit of our death," can at least offer "green leaves of our labour, white flowers of our thought." The efforts to do the work which the generation untimely dying should have done will be hard, perhaps impossible. Strive as we will, the numbing "sclerosis" of bodily tissues, and alas! of mind, lies in wait for us, but we are unworthy of these youths if we do not try and if we make the endeavour in their glad spirit of sacrifice who shall set bounds to our possible rewards?

I remember reading (rightly or wrongly matters little) that the ancient Romans had such a superstitious dread of the words "death" and "dying" that they would rather say of men that they had lived than that they were dead. We smile at the fear, yet what profound wisdom lies hid in it! Death matters terribly to those who are left to mourn love cut down and hopes withered, but for man or woman what is significant is not to die but to have lived. How many of the brave and wise, "the flowers of the forest," have spent their lives in one generous outpouring to buy for the world a freer, nobler air! On us lies the burden of the work which they had to relinquish; for us, too, it must some day be said: "They have lived." Shall it not be added—"and to some fine purpose"? It matters nothing that our immediate task lies in a field scorned and neglected. It is not for us to rebel against our allotted duty but rather make of it what fine thing we may. Just because it is neglected our small efforts may some day be known for the greater gain to the world, when man reaches a new height in his struggle upwards.

"Whence looks he on a land
Whereon his labour is a carven page,
And forth from heritage to heritage
Nought writ in sand."

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THE THREE DRIFTS IN THE EVOLUTION OF INTERNAL SECRETORY THERAPY.

I.—SUBSTITUTION THERAPY; II.—ACTIVATION THERAPY; III.—HOMŒO-THERAPY.

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HISTORICAL.

To France is undoubtedly due the honour of first crystallising view and idea concerning Internal Secretions into concrete instance. Claude Bernard in 1855, supplied a definite physiological illustration. Brown-Sequard later amplified the conception of Internal Secretions to include therapeutic powers. To England belongs the credit of clearly defining a form of disease hitherto unrecognised—now named Addison's Disease—which furnished indubitable evidence of constitutional ill-health due to a ductless gland defect, in this instance that of the supra-renal bodies. Later in the seventies another unknown malady named, after its outstanding physical change, myxœdema, was observed, and illuminated by Gull and Ord; and this later furnished the first clinical evidence of the function of the thyroid gland.

Thereafter many internal secretory enquirers ran to and fro, and knowledge was increased. England again took the lead in the passage from Physiology to Pharmaco-dynamics in the internal secretions. This was made in 1890 by Prof. Sir George Murray, who gave to the world an account of a case of myxœdema—a thyroid deficiency—for which thyroid extract was fed as a physiological redress.

The case and its brilliant result of treatment by thyroid gland-juice opened the floodgates of therapy by internal secretions, which soon overran the narrow limits of proven ductless gland defects, until there is scarcely a nook or cranny of the boddy, and certainly not a disease, for whose requirements as well-being or cure some internal secretion has not been experimentally prescribed. The detail has been bewildering, the results, positive or negative, have been surprising, but out of an enormous mass of empirical haphazard some useful generalisations have emerged.

THE BEGINNINGS OF INTERNAL-SECRETION THERAPY.

Brown Sequard's experiments on himself and others with orchitic material had already excited a diffused interest in the therapeutic powers of animal extracts. But the empirical nature of the procedure,* the lack of specifity in the medicament employed, and the personality of the prime mover, conspired to make this initial step to many merely an *affaire pour rire.* Not thus was organo-therapy to take its place as a certified addition to the forces which make for cure. In 1884, at an International Medical Congress at Copenhagen, the association of the disease termed myxœdema with thyroid defect was first clearly established. In 1888, a Committee of the London Clinical Society, appointed thoroughly to investigate the matter, reported in terms of complete confirmation of the finding of the Copenhagen Congress. Now came the perception and the initiative of genius.

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* Much interest was aroused by the work of Brown Sequared in 1889 upon orchitic extracts, work which demonstrated great lack of critical power in its author . . . . It is probable that a good deal of Brown Sequard's personal benefit under this treatment is to be attributed to suggestion." (Professor Swale Vincent.)

THE FIRST IMPORTANT GENERALISATION : "SUBSTITUTION THERAPY."

Soon after the Copenhagen and London pronouncements, Professor Sir George Murray devised the clinical counterpart to pathological sequence of thyroid defect and myxœdema. If this latter disease was due to thyroid deficiency, why not make good the shortage?

I.—Thyroid Substitution Therapy.

The earliest case of Sir George Murray is here cited: The patient; a woman of 46, had been ill with this disease for four or five years; her face was blank and expressionless, the features enlarged and thickened; the speech was drawling and the bodily action slow. The hands and feet were unwieldy; the skin fine and powdery, the remaining hair thin; the bodily temperature ranged between 95·6 and 97·2. There had been no period for six years, and no perspiration noted for four years. The natural juice of a sheep's thyroid was injected into the tissues. In three months the disease had vanished; the body temperature became normal, the regular period had returned, the skin now perspired, the facial and other deformities had disappeared. Thus ended stage one of treatment.

Stage two now commenced (1891) and has steadily continued up to the last date of report (1914). The patient was then alive and well, and had been kept in good health by the daily injection of 10 minims of thyroid extract, or 6½ oz. in the course of a year. Less than a gallon of thyroid extract in all has therefore maintained her health for twenty-two years.

This is Substitution Therapy in excelsis. The selected case was fitting, the issue dramatic and the method has never been improved on. The lead thus given in the treatment of myxœdema was followed up for cretinism, and a typical case is given by Hertoghe:

A boy born a cretin was at the age of fourteen years, twenty-nine inches in height—the normal height at eighteen months: the entire body was infiltrated; through the gaping mouth the bulky tongue protruded; the abdomen was protuberant, the extremitities bent, constipation was invincible; his intelligence was nil, speech being represented by a few grunts. Thyroid substitution-therapy was commenced, and after seventy days treatment the growth in height was four inches; after two years and nine months treatment the height had increased by six inches the abdomen was lessened in bulk; the infiltration of the limbs diminished. After twelve years treatment the height had increased by 27½ inches: the intelligence had developed, the general capacity that of manhood.

Surely Osler's panegyric on thyroid therapy in cretinism is justified here:—"Not the magic wand of Prospero or the brave kiss of the daughter of Hippocrates have effected such a change as we are now enabled to make in these unfortunate victims, doomed heretofore to live in hopeless imbecility and unspeakable affliction to their parents and their relatives."

II.—*Adrenalin Substitution Therapy.*

Addition's recognition in 1855 of the disease which bears his name was a masterpiece of clinical work, but it left the malady stranded as a clinical curiosity. Now the epoch-marking success with the thyroid acted as an inspiration to strivings after supra-renal therapy for supra-renal defect. Point and impetus were added by the discovery by Oliver and Schafer in 1891 of the extraordinary powers of the supra-renal internal secretion, and later by the identification of adrenalin as its active principle. Schafer wrote that: "If only so much as a grain by weight of supra-renal capsule be extracted by alcohol, and this alcoholic extract be allowed to dry, redissolved in salt solution, and injected into the blood, the results which are obtained, considering the minute amount of substance added, are certainly most extraordinary."

Naturally, this paved the way for its immediate and eagerly watched for trial on the lines of substitution-therapy in cases of

Addison's disease. Nor was the necessary swallow to provide the outlook of summer lacking at the commencement, for some of the earlier reported cases gave colour to optimistic expectations. Oliver in 1895 gave his experience in two instances of the malady named after Addison: "In both I observed, an increase in weight and disappearance of nausea and anorexia. In one the pigmentation after three months was not very noticeable. The cardiac and venous murmurs have disappeared, the patient is able to walk with comparative ease; in fact, it is in every respect a resurrection." This was in 1890.

In 1897 Dr. Byrom Bramwell contributed the ensuing case, which at first blush seemed to justify optimism.

A man æt thirty-seven had for two years noticed increasing skin pigmentation. He complained of extreme languor and debility: was faint and giddy on stooping, and breathless on exertion. Vomiting had occurred for the last three months: the heart sounds were feeble so as to be almost inaudible.

Supra-renal treatment by injection was carried out twice weekly: in a fortnight a manifest improvement occurred in the colour of the skin and in the general health: the patient could take physical excercise and once again attend to business. After a year's treatment he could walk a distance of eight miles; before, he was so feeble as scarcely to be able to dress or undress: a second year elapsed of fair health, when he died after three or four days illness from some toxic condition. Examination showed "absolutely nothing left in the body which could properly represent a supra-renal capsule"

Sir William Osler, some time later followed with a case similar to the foregoing:—

A man æt twenty-one, delicate-looking, with marked pigmentation of the face and lips, had an extremely feeble pulse, irregular, intermittent. Nausea and vomitting with vertigo on several occasions, were further distresses. Supra-renal treatment was commenced in July, 1899 with little change until early in 1901. Improvement then commenced, and continued. Seen in October 1901, he looked practically well, except that the pigment persisted. The pulse remained under 90 per minute. In November he died after three to four days illness from an acute indeterminate infection. On examination "the adrenals were sclerotic and had completely disappeared." The adrenal extract had been continued without break up to the last illness.

In 1903, Adams published an analysis of 105 cases of Addison's disease, treated with supra-renal preparations. Of these seven were made worse and forty-eight derived no real benefit: sixteen were "permanently relieved." These figures justified his plaint that supra-renal feeding in Addison's disease has by no means given results comparable in brilliance with the effects of thyroid treatment in myxœdema.

Even the limited esteem implicit in this criticism has grown smaller by degrees and emphatically less as further years have supplied ampler tests. Thus Batty Shaw in 1905: "Unless grafting of the supra-renal is made practicable there is little or no hope of curing Addison's disease by organo-therapy" and Elliott in 1915 administers the *coup de grace* "Neither with animal experiments nor in man has treatment with adrenalin proved to be of value in prolonging life."

In every method and application known up to the present, substitution-therapy here will not work. The parallelism between thyroid and adrenal secretory output cannot be maintained. It did not exist. It was found often impracticable as well as void of result to feed supra-renal internal secretion for Addison's disease in the same way as thyroid internal secretion for myxœdema.

III.—*Pituitary Gland.—Substitution Therapy.*

Various observers had worked at sundry times at an extraordinary disease known as acromegaly: but it was reserved for Dr. Pierre Marie, a French physician, to demonstrate in 1886 its character as a disease of the pituitary gland. The variety and generalisation of the symptoms and signs indicated a central origin; overgrowth of the "acral" tissues, and later, grave nervous perturbations, constitute the disease one of gravity if fortunately of rarity. Marie's demonstration of its contingency upon pituitary disease has made his work classic: so familiar did he become with the outward and visible signs of the disease that on one occasion, travelling by train, he entered into conversation with a fellow passenger whom he had diagnosed as suffering from acromegaly. The passenger was much surprised when after a few minutes Marie told him that his tongue must be enlarged. He had already discovered the fact for himself, but wondered a stranger in the train could have known it.

A striking human document was issued two or three years ago by Leonard Monk, who was both medical observer and patient in one. Dr. Monk followed the detail of his case with great acuteness, and all is given with the saving grace of humour in his book on himself published in 1913.

"For the first period of fifteen years most of the troubles in my head were of the neuralgia type, and accompanied by great restlessness and desire for active movement. Whereas during the later period of fifteen years the lethargic or fatigue type has been much more pronounced. One would like to know whether one period may not have been influenced by an excess, and the other period by a diminished amount, of pituitary secretion."

And here is the wisdom of experience: "It is easy to understand my reluctance to drug myself indiscriminatingly with pituitary extract, if by so doing, I may shortly find a place in the ranks of the martyrs to science."

CONCLUSIONS AS TO THE RANGE OF SUBSTITUTION THERAPY.

Obviously the case of thyroid deficiency and its replenishment is not parallelled by that of shortage in the output of the adrenal or pituitary internal secretions. Whether in these latter instances the failure of substitution therapy be due to lack of physiological precision in the use of an alien secretion, or to its uniform continuous supply: or to the opposite pharmaco-dynamic action of maximal and minimal dosage: the fact remains that the syndromes of Addison's disease and acromegaly are not controlled by the artificial supply—by methods hitherto adopted—of the corresponding internal secretions. Cattle puts this point succinctly. "So far as I am aware no cure either of pronounced Addison's disease or of acromegaly has been recorded. Thus the brilliant prospects of treatment by means of animal extracts, opened up by the signal success of thyroid treatment have not so far been realised."

II.—Activation Therapy.

Were the therapeutic powers of the internal secretion limited to substitution-therapy, the method might be simple in adjustment, but certainly limited in range. Comparing things that differ, it would be as the regular supply of alien pepsine to a digestive equipment, whose pepsine production had ceased. Properly speaking, this is not theraphy at all: and not thus are the actual curative values of internal-secretory therapy to be exploited.

While working with thyroid as a substitution-substance, it was incidentally discovered that various symptomatic states, such as enuresis, and various organ-diseases, such as psoriasis, might be cured by the administration of thyroid in comparatively small dosage, and within a time-limit. Similar abiding results were and are obtained with other internal secretions as therapeutic measures in other maladies, and in particular, as with adrenalin and pituitrin, where substitution-therapy as hitherto applicable, had failed. In yet other instances it was found—as with thyroidin,—that when substitution-therapy had been properly commenced in time, continuous dosage or any dosage was no longer necessary. The disease *e.g.*, myxœdema, had been cured; the daily output of the thyroid internal secretion no longer needed alien supplement. What had occurred?

Hallion's Law.

With the inimitable faculty of the French for terse generalisation, M. Hallion has thus discerned and stated the process underlying this curative issue;

"Extracts of an organ exert on the same organ an exciting influence which lasts for a longer or shorter time. When the organ is insufficient, it is conceivable that this influence augments its action: and when it is injured, that it favours its restoration."

This brings the curative action of internal secretions into line with the activation of the hæmoglobin molecule in anæmia by iron, and of the lecithin complex by phosphorus. Plenty of iron and of phosphorus exist in the daily food: what is deficient is the fixative power of the corresponding anabolic processes for these elements. Plenty of crude material for the building up of the internal secretions exists in the proteins of the blood: it is in internal secretory defect the constructive power that is primarily lacking. The necessary stimulus in these cases of cure is afforded by the introduction of *e.g.*, thyroidin or adrenalin in balanced quantity repeated into the blood stream.

Activation-therapy as Qualitative Control.

Let us examine this solution of the problem of activation more closely. Harrower, in validating Hallion's law, states that "it has been proved again and again entirely possible to regenerate that part of the gland which is not yet beyond the hormone stimulus; and even to cause a hypertrophy of the tissue thus regenerated." Here is implicit the selective action of a particular stimulus—the hormone therapeutically given—on a particular tissue—the part of the internal secretory gland in defect. This hormone-stimulus permanently heightens the lowered dynamic of the internal secretion—it cures the case and increases the area of secretory cells, "even causing a hypertrophy of the tissue thus regenerated."

But this activation can scarcely be due to a *quantitative* addition to the hormone content of the circulating blood. The activating powers of a therapeutic unit, *e.g.*, of thyroidin or adrenalin, are infinitesimal as compared with those of similar unit-quantities already active within the body, the product of its own secretion. Even when reduced, say to half quantity by disease, the moiety still in circulation must have a much greater total activation effect than a therapeutic-unit quantity occasionally introduced into the blood stream. Is the quantity daily provided by the gland-activity, and circulating in the blood, devoid of an activating power which a fraction of its totality, introduced artificially, is able to exercise?

—Or as Qualitative Stimulus.

The law of Hallion is visualised much more clearly in operation when the action of the therapeutic unit is considered to be *qualitative.* The curative dose is of higher grade material than that, *ex hypothesi,* produced by gland cells in a state of defect or disease. Truly, this view implies a physiological declension in activity of the whole gland output, or the residual healthy tissue would secrete a product of the same grade as the therapeutic unit. Certainly it is an interesting conception that the physiological grade of each internal secretion may be conditioned ~~by the~~ specific tonic influence of each on its own ductless gland. This of course implies that no heterogenetic differences exist in hormone-therapy, between the values of internal secretions, *e.g.*, thyroidin or adrenalin when derived from man or the lower animals.

Activation-Therapy at Work.

Historically, the first reported case of thyroid treatment for skin disease is of peculiar interest. The clinician was Dr. Byrom Bramwell, and the inspiration came from observing the exfoliation of skin during the cure of cases of myxœdema.

The patient was aged eighteen, the disease, psoriasis, of nine months development. The eruption was universal: the scalp, the back and front of the trunk, and upper and lower extremities were thickly covered with "an eruption in many places of an angry red appearance, the crusts being of a dark purple colour." Treatment commenced on February 4th, and consisted in administration of a quarter of a raw thyroid gland daily. The controlling hand of crude organo-therapy is here in evidence.

February 1[illegible]th, six days after commencement, a distinct change for the better was obvious: on February 14th, "the eruption was being shed as large scales." By February 16th, the improvement was most marked; and on March 1st the eruption had in great part disappeared. Seen on April 1st, an arrest in improvement seemed to have occurred: the thyroid treatment was discontinued, and *Arsenic* substituted. "The effect was disastrous."

On April 11th *Arsenic* was discontinued, and thyroid treatment again commenced, on this occasion not with the crude gland, but with an extract *(liq. thyroidei)*: On April 14th improvement was noticed in the patches of eruption. But by May 3rd "the eruption had completely disappeared from the scalp, limbs, and trunk: the patient had gained a stone in weight." On June 6th, the record was "scalp and skin absolutely normal and healthy": the patient was well.

This epoch-marking case was historically the first of a series, which since has swollen to immeasurable dimensions, of thyroid cure of skin disease. Activation of the defective thyroid secretory values by the administration of an alien secretion, presumably of higher potential, issued in permanent restoration to normal. This is activation-therapy.

Activation-Therapy is Empirical Therapy.

The great mass of internal-secretory theraphy, is by activation; and hitherto this therapeutic is entirely empirical. Professor Elliott succinctly states the case with regard to the therapeutic uses of adrenalin: "their value has been established by clinical observation, and like so many of the useful facts of medicine, does not at once flow from the guiding generalisations of pathology." And specifically, "the great relief experienced in acute attacks of asthma as the result of hypodermic injections of adrenalin is a purely empirical discovery in medicine. It is a good illustration of the manner in which medicine is aided by those who try things, and do not wait to move until the step is completely justified by a formal theoretical exaplanation of the benefits expected to accrue from it." Equally explicit with regard to the empirical character of thyroid therapy is Harrower: "an immensely valuable procedure which is 'quite unscientific' but none the less resultful." And Ewan Waller thus sarcastically dilutes the praise of Professor Elliott for those who "try things": "Thyroid extract, for instance, has now been prescribed for almost everything, and according to innumerable authors, with good results. Yet when we come to continued clinical trial, which is the crucial test, we find that thyroid treatment will overcome a given symptom in one case, and utterly fail in another."

ADDENDUM.

For clearness in presentation, the case of internal-secretory therapy has been reduced to its simplest elements: but as in all biological problems, actuality in working is more complicated than is portrayed by detached consideration.

Complexity is introduced by multiplicity and divergence in the stuctural hormone-secreting units, and by the intricacy of functional balance by which uniformity in hormone work is maintained.

Packed in various parts of the economy, often with no local import, each structural hormone-secretory unit lives and works in anatomical isolation from the rest, but with the keenest physiological sensitiveness attuned to the faintest murmurs of what is transpiring in other distant units, and reciprocating automatically at once.

The normal hormone balance is the resultatant of all the hormone forces at work, in stable proportion, in the body. How numerous are the hormone forces that enter into this composition may be indirectly inferred. Starling gave the name "hormone" —chemical messenger—to those substances, produced in one part of the organism, which circulated in the blood for the physiological requirements of parts at a distance. In this conception there is nothing of "balance."

Schäfer considered that the internal secretions thus circulating exercised either stimulus or control over the responsive tissues. The former he termed "hormones," the latter "chalones." This view amplified the scope of internal-secretory action, but left co-ordination wanting.

Biedl, quoting Gaskell, takes a much wider outlook. In his view each hormone, when in defect, cancels the balanced control over a receprocal and antagonistic 'tormone (dis-assimilatory hormone), and it is the disturbance of normal balance thus envisaged that eventuates in disease due to hormone defect.

The elements thus entering into disease from internal secretory defect or excess are bewildering in their complexity. The secretory powers of a ductless gland is *e.g.*, injured by extraneous disease. The output becomes qualitatively or quantitatively defective. Its own special work to this degree undergoes shortage. The catabolic antagonist, its own specific dis-assimilatory hormone, has so much detent removed and destroys instead of builds. Each and every one of the ductless glands throughout the body has its normal contribution to the working-hormone-totality altered.

The *synergistic* internal secretions, *quoad* that in defect undergo quite a limited compensatory increase. The *antagonistic* internal secretions—at least temporarily—further render the abnormal equilibrium unstable. This is well seen in the internal secretory perturbations of the menopause.

In internal secretory disease, the circle of perturbation ensuing may be broken up at various points by a corresponding internal-secretory therapy. Thus a hormone-secretion in defect may be restored by a corresponding administration. Or the results of the release of anatagonistic hormone-energies may be met by one or another hormone control; or palliative therapy may resort to life-long substitution. But in each and every case, the internal secretory syndrome is always constituted by symptoms contributed by all the ductless glands primarily, or secondarily involved. Harrower again puts the point succinctly: pituitary medication does not cure hypo-pituitarism, probably for the same reason that Addison's disease is not usually answerable to adrenal therapy, and thyroid therapy will not entirely replace an absent or atrophied gland." What fortunately allows internal-secretory therapy to be at least approximately effective, is the dominant influence exercised by the main defect, and consequently by the main remedy.

[The case for Homœo-therapy in the spheres of internal-secretory defect will be presented in the next and concluding paper.]—The *Homœopathic World,* February, 1917.

REVIEW.

Diseases of the Nervous System. By John Eastman Wilson, A.B., M.D., Second Edition, 682 pages, large 8vo., cloth, $ 6.00 net, Philadelphia; Boericke & Tafel, 1916.

Messrs Boericke & Tafel deserve our grateful thanks for excellent medical works that are published by them from time to time. We have got the "Diseases of the Nervous System" by Dr. Wilson. Such a work will bear comparison most emphatically with similar works of the old school of medicine. Homœopathic literature was stigmatized as barren of original works, but Messrs. Boericke & Tafel have removed this stigmra by seeking the best men in different departments of Medicine and Surgery and getting from them their best works. We hope with the advance of time our literature will have a complete array of monographs to vie with those of the old school of which they may boast. Researches are not the monopoly of one school of worker or another and consequently there is nothing to boast of the discovery done by so and so only. We are open to such things and we have no hesitation to incorporate in our literature the discoveries which are done by any man. Discoveries tending to produce the maximum benefit of man are sure to draw the attention of sane men, but the doctors of the old school, it is a pity to note, do not show sufficient sanity often times. The sphygmograph discovered by Dr. Dudgeon, long served as a probationer before it was christened by the old school men and introduced into their books. Similarly there are several medicines which were rejected at first as useless but are now introduced into their materia medica. We have no quarrel with the old system of treatment but we only want that there should be co-operation. Doctors disagree is an old adage but with the dawn of greater light we must come to the conclusion that doctors must agree, otherwise the knowledge will not advance and will ever remain in a chaotic state.

The present book is a masterpiece. It is divided into eighteen chapters. The first has a queer American heading—The architecture of the Nervous System. In this chapter the author deals clearly with the anatomy of the brain, and the spinal cord, the histology and physiology of the nerves the etiology and pathology of the nervous diseases. The cerebro-spinal fluid and the tracts of the cord have also been dealt with clearly.

The second chapter deals with the general symptoms of diseases of the nervous system, the third with the peripheral nerves. Subsequently in chapters from four to eight the author deals with the diseases of the spinal cord. The diseases of the brain are dealt with in chapters nine to twelve. Syphilis of the nervous system, functional nervous diseases, spasmodic diseases, neurasthania, occupation neuroses, paralysis agitans have respectively been treated under separate chapters. The author spared no pains to make the book complete in every sense of the word. In fine we have no hesitation in saying that it is the most up-to-date production and in many respects superior to previous publications of similar nature. The author did not hesitate to take advantage of the reports of the Rockefeller Institute for Medical Research, of the recent study of Meningococcus Meningitis by Heiman and Feldstein and of the Massachusetts reports on Poliomyelitis and of other reports of similar nature. It is this unbias use of the works and labour of other school that has made the book most useful. It is not a one-sided monograph and we hope all medical practitioners should get hold of a copy of this. As for the treatment of diseases the author did not restrict himself entirely within the lines of the *Similimum* but has given, besides the hemœopathic remedies, other palliative modes of treatment.

Therapeutic By-Ways.—Being a collection of therapeutic measures not to be found in the text books. Collected from all sources. Condensed and arranged by Dr. E. P. Anshutz, 195 pages, cloth $ 1.00 net, Philadelphia, Boericke & Tafel, 1916.

It is true as the author says in the preface that "no man 'knows it all' in medicine, be he a follower of the rule of opposites in therapeutics, of similars, of experience, or of any other school and system. On the other hand, nearly every practitioner has some useful measure that is not to be found in the text books." It is true, indeed that men develop their knowledge by experience, but seldom these experiences are embodied in books and hence they die with the persons. In this way the world has lost invaluable treasures of which there is hardly any hope of recovery. Very good idea dawned in the author's mind that "the flotsam and jetsam of therapeutics drifted into view and then away into oblivion" should be collected from all quarters and the result of such a collection is this little book under review. In these collections some are 'foolish or worthless" as the authur says but there is also "pure gold that may aid many a bothered physician." In the course of reading through this brochure we have actually come to such "pure gold" as *honey-lard* for croup, the *juice of pine-apple* for diphtheria etc. Then again for Insomnia we have *onions, nutmeg* etc. Turning to any disease we find there are several so-called homely remedies, and these homely remedies are sometimes much more useful than the drugs.

This little book is useful to the physicians as well as to the lay. It would have been within the reach of every one if the price had been less than a dollar.

Keynotes of the Homœopathic Materia Medica.—By Dr. Adolph von. Lippe, Edited by Donald Macfarland, M.D., with an introduction by William B. Griggs, M.D., 163 pages, Cloth $ 1·00 net, Philadelphia, Boericke & Tafel 1915.

We see that the book has been edited by Dr. Macfarland and an introduction written by Dr. Griggs. But in reality we find that the introduction has been written by Dr. Macfarland and the life of Dr. Lippe, not the introduction, written by Dr. Griggs. As an editor Dr. Macfarland has not said a single word about the book or the arrangement adopted by its author. He has explained the principle of Homœopathy, the necessity of proving drugs upon healthy men. He has also explained characteristic symptoms showing the peculiarities and differences of medicines. He has clearly shown that the fundamental doctrine in homœopathic therapeutics is the doctrine of individualization. The potency question has been dismissed by one word that "there is really no law of potency in one sense." We may add that not that there is no law but our present knowledge is so rude that we have not yet arrived at a definite law of potency. The law of cure, the single remedy and the minimum dose are the three requisites for homæopathic prescribing, and these the editor has explained in a very few words—"such a system" says the editor "of therapeutics, embracing, as it does, the most careful individualization of the cases at hand, as to its origin in hygenic, psychic or medicinal (abuse of drugs) causes, cannot be any other than the broadest, most truly scientific and all-inclusive system of healing known to the health seeker of the future." As for the body of the book we have nothing to say as there is nothing new. The principal symptoms are arranged under each drug and they are useful in finding out the proper medicine for certain diseases. The price of this book is rather high.

EDITOR'S NOTES.

Raw Starch in the Treatment of Diabetes.

In the September number of the *Jurnal of the Missouri State Medical Association,* E. B. Kierr describes his treatment of diabetes. He places the patient in a hospital or sanatorium and puts him on raw starch and water until all the sugar has been burned out of his system and circulation. This may take from one to four days, though glycosuria usually disappeared in from twenty-four to thirty-six hours. A dram of starch in a glass of water every two hours is all the nourishment allowed until the urine is sugar free. No preliminary days of reduced diet are necessary, and therefore the excessive hunger, thirst and polyuria are unknown under the use of raw starch which satisfies the patient's craving for carbohydrates. As soon as the urine is sugar free the patient may be allowed green vegetables, such as lettuce or celery, with salt and a soft egg; the allowance is gradually increased by the addition of meats and boiled vegetables. The dram of raw starch, however, should be taken three times daily for a year or more. Citric fruit juices should be used to control acidity of the secretions, except where they aggravate the glycosuria.—The *Homœopathic World,* February 1917.

Palliative Treatment of Toothache.

Du Mont ("*Deutsche med. Wchenschr.*, No. 11, 1916) was suddenly seized with violent toothache while on duty, which did not disappear even after energetic painting with Iodine. To get some relief he tried what was at hand, and began to inhale some Eau de Cologne. By an accident some of the fluid came on the nasal mucous membrane and at the same moment the toothache disappeared. He has since used this treatment in numerous cases both in civil and military life, and always with the desired result. The use is exceedingly simple. A few drops of Ether are placed on a plug of cotton wool the size of a pea, and the plug is then placed in the corresponding nostril. A slight pressure on the nose is sufficient to allow a few drops of the fluid to reach the mucous membrance, the patient's head meanwhile being bent backwards. The plug is immediately removed, generally by the patient himself, because of the momentary pain. This gives relief, not only for a few minutes, but for a considerable time. The treatment was successful not only in the case of carrious teeth, but also in cases of inflammation of the dental periosteum or for rheumatic toothache.—The *Homœopathic World*. February 1917.

The Pyretic Action of Garlic.

Garlic is a familiar remedy to the homœopathist, but has lately been attracting orthodox attention and preparations of it have been praised in Tuberculosis, a disease for which some of its proved symptoms would suggest it. Dr. Perez, of Teneriffe, writes to the *Medical Press* to call attention to the power of garlic to cause pyrexia when applied per rectum or even when rubbed into the skin of the axilla. He rightly points out that this ability to cause pyrexia is of significance in connection with the use of the drug in Tuberculosis. It certainly is for the homœopathist of *much* significance.—The *Homœopathic World*. February, 1917.

A Case of Chordoma.

A chordoma is a very rare form of neoplasm, originating from the remains of the notochord or chorda dorsalis that represents, embryologists tell us, the first axial skeleton or backbone. The bodies of the vertebrae and the base of the skull are developed from the notochord ; itself, it disappears during fetal life, leaving behind only small pulpy masses in the intervertebral discs. Its upper limit is the juncture of the sphenoid and occipital bones. In a series of reprints* published by the University of Iowa, Professor Albert, the editor, gives an account of a case of chordoma coming under his own observation. The patient, a man of 26, was in a railway smash in February, 1913, receiving bruises about the head, right leg, and coccyx, and breaking a collar-bone. The coccygeal pain continued till May, when pain on defaecation and melaena were noted. A tumour was found projecting forwards from the coccyx, but not adherent to it obstructing the lumen of the rectum. It was removed by operation, and on microscopical examination was found to be a chordoma. Four months later the pain, melaena with discharge of pus, and difficulty of defaecation all became worse. A nodulated annular mass surrounding and constricting the rectum was found, and a piece of it on removal and examination proved to be a chordoma. A modified Kraske's operation was performed, and three inches of the portion of the rectum involved by the tumor were removed. Before long signs and symptoms of recurrence of the growth appeared; a colotomy was performed in March, 1914, but the patient died in the following July. Professor Albert has been able to find only fifteen other cases of chordoma recorded in the literature. The growth was malignant in ten and apparently innocent in six instances. It occurred in the region of the spheno-occipital synchondrosis in ten cases, in the sacro-coccygeal region in the remaining six. The original tumour itself in Professor Albert's case was two inches long, an inch and a half wide, and an inch thick; it was soft, light in colour, and not connected with the coccyx or sacrum. Under the microscope it showed groups or columns of large vacuolated degenerating cells, separated by homogeneous interstitial substance or bands of of fibrous connective tissue. The interstitial substances presented the staining reactions of mucin or mucoid substance.—The *British Medical Journal*, December 16, 1916.

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* *University of Iowa Monographs ; Studies in Medicine.* Vol. i. No. 1. June, 1916. Edited by H. Albert, M.D. Published by the University (Med. 8vo, pp. 94.)

The Alimentary Aspects of Whole-Meal Bread.

An article in *Il Morgagni* of Oct. 27th by Dr. E. Bertarelli, professor of hygiene in the University of Parma, who has made a special study of the medical and economic aspects of food, is interesting to British medical men on the institution of food control in this country. Many physiologists remain sceptical as to the exact utility of the protein substances in a bread rich in bran. Nor is it sufficient to insist that by introducing bran into bread there is also introduced a higher percentage of organic nitrogen which is lost in white bread; it should also be shown that this nitrogen is really capable of being utilised. On this point there is discrepancy of opinion which blames the bran as exciting peristalsis, and causing slight but undeniable catarrhal inflammation of the mucous membrane of the small intestine, so that in consequence the utilisation of the nitrogen is in effect less than with the consumption of ordinary white bread. This accusation is especially levelled against a whole-meal bread prepared by softening the grains of wheat for a short time only and immediately afterwards grinding them in a machine which lacerates them and, by the addition of water, converts them into a homogeneous dough. Such a dough is not easily leavened, is but slightly changed, and is full of water and coarse detritus of hard bran. Nowadays whole-meal bread or what is commercially sold under this name, is prepared in the same way as white or brown bread, using flour containing about 80 per cent. of entire wheat. Complete utilisation of the grain is not a preconception of bigoted economists who desire at all costs to save fragments of alimentary substances from waste. It ought to be possible, without causing any harm to the organism, and by making use of the outer portion of the spermoderm of the grains, to use the protein substances existing in the bran. It ought not to be impossible to find some method by which the bran will have no harmful effect, even if it is used in the same relative quantity as it is present in the grains. Economists have no difficulty in showing that the utilisation of the whole grain effects a gain of even 15 per cent. in comparison with present methods, but in reality the question is how to make the bread in such a way that the physiological gain runs parallel to the economic. This is the point to which Professor Bertarelli draws attention in discussing the preparation of "natural" bread, in which the entire grains, or caryopsides are soaked in water for a long time so that they undergo changes comparable to those which take place when barley is malted, affecting every part of them from the outer layers to the starch itself. By this means, he suggests, there takes place a partial hydrolysis of the cellulose and a separation by maceration of the different layers so that it is improbable that there would be left in the bread fragments of resistant hard bran similar to what is found in a bread prepared from whole grains ground in the usual way. After baking, a good bread is produced which is rich in bran, but which, neither in appearance or taste, or in the presence of detritus of scaly fragments of bran, resembles some of the usual types of bread which are classified under the term of whole-meal bread. Moreover, leavening is absolutely perfect.—*The Lancet*, December 2, 1916.

Sanitation and Disease in Bengal.

The work of combating disease in India is rendered difficult by the indifference of the people to elementary hygienic precautions. The annual report for 1915 recently issued by the Sanitary Commissioner of Bengal illustrates this fact in a striking manner. The ravages of cholera in the Presidency during the year were very great, the number of deaths due to that disease being over 130,000, an increase of 41,000 on the total of 1914. The districts which suffered most severely were Mymensingh and Malda, and the high rate recorded is explained by the action of the people themselves. Dealing with Mymensingh, the civil surgeon writes: "In August, when a large part of the district was under water, dead bodies of cholera patients were, in two subdivisions of the district, thrown into the flood water, which spread the disease far and wide till the end of the year. These two subdivisions were responsible for 18,519 deaths out of a total of 26,662 in the whole district." This record is supplemented by the account given by the civil surgeon of what occurred in Malda. "From some of the bordering villages dead bodies were thrown into the river, and this contaminated the water and facilitated the spread of the disease to the villages situated on it." It is not surprising, in view of the facts we have cited, that the Sanitary Commissioner should declare that outbreaks of cholera must be counted as annual events so long as the majority of the sources of water-supply remain subject to gross contamination. But even where waterworks are installed and a pure supply is forthcoming the advantages thus afforded are not universally appreciated. Thus, at Berhampore, which has been provided with a pipe-supply, certain classes of the inhabitants persisted in drinking unfiltered water brought from the river, with the result that 74 deaths from cholera took place among them last year, while those who availed themselves of pipe-water remained immune to the disease. Bengal occupies the unhappy position of being the only part of India where the death rate exceeded the birth-rate in 1915. The increase in mortality was largely due to cholera and small-pox, while the diminution in the birth-rate is ascribed to the deficiency in rainfall in 1914, which by preventing a decline in the prices of food grains affected the vitality of the poorer classes. The Government resolution on the Sanitary Commissioner's report expresses the opinion that the best prospect of permanent improvement in village sanitation lies in the widespread formation of union committees and the free exercise of their powers of local taxation. The Governor agrees with the Commissioner that much immediate improvement, which would also have an educative value, could be attained through the personal interest and initiative of district officials.—The *Lancet*, January 19, 1917.

The Curious Phases of Disease.

According to *Public Health Reports*, Talladego, Ala., suffered from typhoid until the water supply was drawn from an artesian well and then it practically ceased. But in time, on Oct. 20th, diarrhœa broke out to the extent of fifty new cases a day. One-fourth of the population was affected though none died. Whence or why the disease no one knows. Camden, N. J., across the Delaware river from Philadelphia, has a water supply that chemists say is almost chemically pure. Yet that water will eat out brass, copper, and solder as though it were an acid. Is it possible that there is a limit to purity that humans cannot safely pass?—The *Homœopathic Recorder*, January 15, 1917.

Teeth.

Health News tells us that "Out of 330,179 school children examined in the city of New York in 1914, 194,207, or 58.8 per cent., suffered from defective teeth. This exceeded the sum total of all the other defects noted by nearly 80,000." To remedy this the Public Health Service "recommends that a good tooth brush be included in the list of Christmas presents for every American child and that its use be made a part of the daily training. If this recommendation is carried out the United States will have more healthy children this year than last and their chances of growing up into useful, healthy men and women will be increased." Tooth brushes and dentists can do much towards arresting the loss of teeth, but they do not remove the cause, which Hensel claims is due to lack of mineral elements in the food.—*The Homœopathic Recorder*, January 15, 1917.

CLINICAL RECORD.

CASES FROM PRACTICE.

By Dr. W. A. Davidson.

[The following cases have been supplied to me by Dr. Davidson and I have done no more than use the material given. Dr. Davidson is a very busy man but these cases show admirably what can be done by Homœopathy in the hands of an acute prescriber, even amid the greatest press of work—Ed. H.W.]

GRAVES' DISEASE.

A woman suffering from the early stages of this disease went to Moorfields because of the Exophthalmos. There she was told that she was suffering from Graves' Disease, and should see a doctor rather than an eye specialist. Dr. Davidson found all the classical symptoms of the disease, and on account of the "throbbing all over" complained of, prescribed *Glonoin* 30. The result was almost miraculous. The entire complex of symptoms disappeared, and the patient returned to Moorfields to show herself and be (very rightly) congratulated by the physician there on her doctor's skill.

HÆMATURIA.

This case, C.P.H., developed hæmaturia after influenza. After disappearing for a time, it recurred. The patient was X-rayed at the London Homœopathic Hospital, but no stone was discovered, and was afterwards an in-patient under Mr. Dudley Wright, but in spite of some intermissions the attacks returned till, in November, 1915, Dr. Davidson was consulted. Abstinence from all alcohol was enjoined, and *Millefolium* administered. The hæmorrhage propmptly ceased and has not recurred since. The patient to-day reports himself as very well.

HÆMATURIA.

We will give this case first in Dr. Davidson's own words:

This was a very interesting case of an old lady, Mrs. S. When I was called to see her she seemed to be dying. She had hæmaturia. They showed me what she had passed, and I noticed that the blood in the urine formed at the bottom of the vessel "a bloody cake" as Nash calls it. I gave *Millefolium*. In four or five days the hæmorrhage ceased. But she complained of a heaviness in the rectum; I gave for this *Ruta* (one drop of the tincture) and it seemed to pass away very soon.

The patient is still living and well.

The plug-like feeling in the rectum had been there for a long time.

It remains to be added that the patient had been treated by various physicians, discharged as incurable from the West London Hospital, and the Infirmary, Wormwood Scrubbs. No treatment had any effect till *Millefolium* was given, and then the bleeding ceased in four or five days. Strength was slowly regained, but the patient is in her eighty-fifth year and very well now considering her age.

ABDOMINAL PAIN, PROBABLY DUODENAL IN ORIGIN.

(Dr. Davidson's Report.)

Twenty months ago this patient was informed by her doctor, confirmed by a specialist, that she "had a cancer in her stomach," that unless operated on she would die within a month. This may have been said to make her decide quickly, but she was in pain so acute that life was not worth living. This had been going on for some time; several local doctors had seen her and all apparently confirmed the diagnosis. When I saw her first she was in a paroxysm of pain, and she told me this was a common occurrence. She had constant vomiting. On examination I found a large tender swelling in the abdomen, food relieved her for the time, but an hour or so after eating the simplest food the pain returned. This was clearly a case for *Graphites* 30, which I gave. It acted almost at once, and I kept on with *Graphites*, and she was so much recovered that in August last year she spent a month at Abersytwith. The pain had practically gone. She had occasion to consult Dr. Blackley last July about her hair which all came off. You will see by enclosed his opinion of her trouble.[*] She still keeps on with *Graphites* They keep an off-licence shop and she may be seen any day pulling the handle and drawing beer to customers.

ABDOMINAL PAINS.

E.R.W., 64 years of age. Suffered from distension of abdomen with marked tenderness < night > heat; great loss of flesh.

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[*] Dr. Blackley held that there had probably been a duodenal ulcer.

Arsenicum 3 and 6 relieved at once. For months the patient has had no pain and has gained two stones in weight. It should, however, be also noted that meat and alcohol are forbidden. The patient had been certified by one physician as suffering from malignant disease and requiring operation, which may at least be taken to imply that his condition was serious.

RENAL CALCULUS (Dr. Davidson's Report).

Mrs. N—— complained great pain over left kidney for two months. Attended West London Hospital. X-rayed; stone clearly visible left kidley; advised to come in for operation. The same night after being at hospital was in great pain, rolling about bed. I was asked to see her. I gave *Lycopodium* 30. Calling next day found her much better, and when they sent, about ten days after, for her to go into hospital she had got on so well that she decided to continue to with homœopathic treatment. She had practically no pain after the first dose of *Lycopodium, i.e.,* four years ago last Easter. I cannot induce her to go to be X-rayed again, so cannot say if the stone has disappeared, but she has no pain. She has got much stouter and is in the best of health.

Mrs. C—— had a large swelling in her throat. She writes; "I asked my doctor what he thought of it; he said he did not know, he had never seen a case like it. The doctor I went to in *Norwich* said I had a cancer in the gullet and that nothing could be done." She was sent up to Guy's Hospital, London, but nothing was done. Before she returned home her sister brought her to see me. I gave her *Thuja* 30 each month. I received a letter in May to say "The lump is gone."

CARIES.

W.R. began to suffer with his arm in 1913, an abscess developed, which discharged and apparently healed, but later, after severe pains another formed and after operation left an intractable sinus. X-rays discovered dead bone: an operation was performed but failed to relieve. *Tuberculin* was given for five months twice a week (!) without success. Finally Dr. Davidson took the case in hand and *Silicea* cured the sinus in three weeks, and it has remained perfectly well ever since.—*The Homœopathic World,* October 2, 1916.

Gleanings from Contemporary Literature.

PSYCHOLOGICAL METHOD OF REVIEW IN TEACHING MATERIA MEDICA—FROM THE HOMŒOPATHIC STANDPOINT.*

By WILLIAM F. BAKER, A.M., M.D.

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Materia medica being the best asset of the homeopathic **physician, and** therefore the greatest "liability" of the homeopathic **college, deserves a** review that will point out the following:

1. Psychologically, the value of any sense depends **upon the amount** and quality of the soul thrown into it.

2. Since Germany has admitted our scientific advancement **and since laboratories** have revolutionized science in our country, **materia medica** needs the backing of practical work in the development of **technicians.** (The success of the sciences in Germany has had **this as its cardinal** principle.)

3. That we recognize in symptomatology the "range of **information"** on which to base a description, and that such range **includes all which is** in accord with the findings of scientific and **biological research** up **to** the present time, in so far as they apply **to medicine.**

4. That therapy is at times made to conform **to** private **grains rather than to scientific** medicine, there being **nearly three hundred investrigators** for private concerns to one in strictly **collegiate work. (About** three hundred seventeen dollars is expended **to promulgate therapy to every** dollar **of** collegiate investigation. The **average life of the specialties** in drug therapy is **eighteen months. Five new specialties** are added very year, **on the average, all claiming merit.)**

5. That the homeopathic prescription **is a profound application of the science of medicine and not a mere matching of symptoms.**

***Read before the** Bureau of Meteria Medica, **American Institute of Homœopathy,** Baltimore, **June 24, 1916.**

6. That the greatest ingenuity is required to accurately prescribe.

7. That modern laboratories prove the principle upon which materia medica is based.

8. That the geographical distribution of its advocates is not complete, there being excellent opportunities in all sections of the country for work of this particular kind.

The modern aspect of the study of homeopathic materia madica is its study from the standpoint of modern methods in psychic analysis. The results obtained in this branch of modern medicine have not always been as promising as could have been expected, and it is not now the question of *what to study* as much as it is the question of *how to study*. In what mental or psychic atmosphere or mental "set" do you study this most important subject? That it is more than the application of the medicinal substance to the sick on the principle laid down by Samual Hahnemann must be admitted; but to lay at the doors of Hahnemann the burden of the adjustment of that principle to the modern needs of the times in which he does not live, is both unjust and unfair.

However, the first legacy Hahnemann gave to us and to the profession is the stimulus for the foundation of preventive medicine when insists upon the removal of the cause. In this he has set the pace for all cultural medicine, and will continue to do so for all time and all conditions of mankind. The application of the principle of cure, his second legacy to us, in lieu of our incomplete cultural and unsatisfactory pathological conditions and explanations, concerns the homeopathic physician most, for it would be impossible for any modern practitioner to accept as final any dogmatic ascertion for therapy which did not make room for the ingenuity of mankind.

Again, more research work has been done in preventive medicine than in therapy; for statistics will prove that 96 per cent. of all research work has been done by or influenced by private capital in industrial pursuits, to the handicap of the scientific spirit of research. Vast sums of money have been expended by commercialistic laymen, public opinion moved by proper publicity, advertisements, *et cetera*, to stress that research work to a yielding of revenue to invested capital, as against research work from the standpoint of the welfare of the community at large.

After eighteen months of investigation, it can safely be said that four-fifths of the entire therapy of this country is controlled by private capital, paying revenue to stockholders. It is to be regretted that the profession at large should lean to these cleverly advertised therapeutic novelties, and the duty of the homeopathic profession now is to as cleverly and with as great ingenuity use, study, and practice their own materia medica under the modern rule of application. For the tendencies of all modern investigators have not disproven, but rather have substantiated the principle involved in the law of similars. To call it by that name would no doubt deplete the coffers of these industrial corporations or rob the investigator of the glory of his achievement when he names his therapeutic discovery. A careful review of therapy, however, will show to be true.

With this wonderfully important truth in view, is it not the duty of every homeopathic college to devote its special energies, asking for the ingenious help of its observers, to develop further, and to further explain the unexplainable?—for with doubt eliminated from the psychic nothing is impossible.

The introduction of the mental states and symptomatology into the diagnosis of disease by Samuel Hahnemann was a step directly in advance of the scientific medicine of that day. Making it a part of a basic prescription for illness was perhaps the next step.

There is no doubt in the mind of any one who has taken the trouble to look into the subject, that Hahnemann outlined a far more humane idea in the treatment of the insane than was held current in the minds of the medical profession of his day. At that time he gave to the world a meteria medica possible of application, and left to us the pursuit of that principle along the lines of our modern ingenuity, in order that we might fulfill his requirements and belief. And it looks as though the legacy has been left to the schools of medicine and private capital who have not been able as yet to disprove it. This, however, does not lift the burden from our shoulders.

It is an assured event in medicine that the grosser pathology has given way before the onslaught of modern psychological research. Our modern psychology recognizes the analytical study of the individual and the "mental diagnosis" both of the student and of the patient alike. In the report of the Rockefeller Foundation of 1914 we find under mental hygienic studies considered in a special report:

"It has been eatablished beyond a doubt that mental defect and mental diseases are factors of social and economic importance. The recognition of this fact has been a great gain. On the other hand, where attempt have been made to determine the precise nature and bearing of these facts on the public health and social and economic conditions, there has been a too hasty conclusion as to public policy; which conclusions could be justified by a more accurate knowledge of pathology and of vital statistics than most authorities possess."

The mental diagnosis of the practitioner or of the student of homeopathy can well be studied by a scheme of psychic analysis advised in our recent experiments along this line, for Hahnemann gained his successes in the analytical study of the mental symptoms and applied the same to his meteria medica; of course, in his application there was the ingenuity that one rarely sets in the present day, for the average observer is placing too much stress on the range of information and not balancing the psychological equation for the purpose of arriving at the result.

The psychological equation, then, would consist of two distinct function. The correlation of the equations brings about the result, and it is this application to the study of materia medica that is the subject for discussion.

The mental "set" or "pace" of the student of homeopathic materia medica is made up of the following separate mental functions. No complete or logical idea or deductions can be made if any are lacking and due to the unbalancing of these ratios has nihilism crept into our therapy deduced from homeopathic materia medica: Concentration of attention, range of information, rapidity of concept, association of ideas, induction and exclusion of faulty information, ingenuity, resoluteness and affirmation, judgment and reasoning, correlation and sequence of ideas, memory—auditory and visual, resultant mentality.

Briefly stated, the range of information corresponds to our totality of symptoms, the diagnosis of the disease, the pathological findings correlated with the diagnosis, the adjuvant treatment, and the entire range of medical methods as applied to that condition with a full knowledge of the results obtained by known medical methods. In the gathering together of such information, concentration of the attention is essential. The rapidity of concept being an efficient factor along with the association of ideas helps us to arrive tentatively at conclusions by using the keynote symptoms. Referring to our repertory we induce mental action and eliminate our reasoning powers directed by symptoms. We show our ingenuity by grouping and interpreting those symptoms with the homeopathic principle in view, and the final result is the selection of the proper remedy.

I believe it is possible to gain interesting data in this form of analysis of the study of materia medica, and also to gain a diagnosis of the ability of the student to properly use the material placed at his disposal for the study of this important subject. The educators in many of our cultural colleges have met with undoubted success, in their ability to diagnose the psychology of their subjects, and the whole field of education has been charted and mapped out with this as a guide and modifier in teaching many subjects. Binet was the first to apply analysis to school children and now the department of psychiatry in our colleges is taking a more earnest view of this situation. Binet was the first to classify children, and a similar method for our larger colleges was outlined before the Psychological Society at their meeting in Chicago during Christmas week 1915.

By an examination of the several mental faculties of the students a coefficient of correlation was outlined, in other words, a test of the efficiency of the student in that particular subject. And, strange as it may seem, the result was that it did not agree with his rank in class. The same classification can be made of our individual ability to study and practice homeopathic materia medica. It does not depend upon our ability to answer a great number of questions in a given time, this would only be relative strength, and not a test of efficiency.

The question, then, of education is the balancing of all factors in the test. The progress and efficiency of the student of materia medica depends upon his ability to energize himself. Furthermore, it is the duty of every internist to eradicate, if possible, every deviation from health as early as passible. And there is no one in our school who comes nearer the truth about the importance of meteria medica than does the old school neurologist, Gowers, who says he has "no place in his philosophy of medicine for therapeutic nihilism, and failure to avail himself of the use of drugs was an evidence of inefficiency in the art of adaptation of the remedies to the indications which were always present when properly searched for." What a wonderful field for the ingenuity of the homeopathic prescriber!

A review of the detail of each mental equation will give us the following:

Range of Information. Under this caption all facts relative to the case and the medicines applicable to that case are arranged in order of their importance. All facts bearing on the diagnosis and pathological finding are next taken in order: in short, all branches of knowledge which are conditional upon the application of the remedy or the case at hand. The range of information of any case or of any drug must include laboratory work, for "faith without works is dead." I have always maintained that the range of information, or as we know it better, drug proving, was the essential reason for our existence as a separate and distinct school of medicine. Occupying as it does the most important place in our policies, it ought to have expended upon it a reasonable amount of money and several all-time men. Whether our range of information will include research studies in atomic dissociation, colloidal chemistry, immunity, vaccines and serums, will depend upon the individual observer; but of what value are these if not studied with the eye always toward the substantion of our law, or for giving to the worker room for ingenuity, without which all research work is valueless. After all, it is the mental set in which this range of information is gathered and studied, or to speak plainer, it is the hope, the ambition or the aim of the observer. In our former studies of this subject I have not the least doubt that much has been overlooked because of the mental attitude of doubt in our investigations.

Many observers in our range of information, although not of our school, have come near the truth, and in the hope of establishing a new system of therapy they have been unwilling to admit the findings of their own work as being homeopathic. We must gather our data then for materia medica from the whole field of research work, using what is applicable, and setting aside that which is of no service. As science develops, instances of our expanding range of information must increase. Whether or not our range will lead us into generalization, manifesting itself into specific information is only a matter of persistence in experimentation. What was formerly unknown must eventually become known through the proper channel or right-fully directed thought, with an eye single toward the homeopathic goal.

Among the many fields for the acquirement of that range of information are industrial or occupational diseases, drug provings, animal investigations and experimentation; but the essential feature will be the spirit in which the work is attempted, for there is none so blind as he who will not see. There will be no lack of sufficient data from the already heavily endowed cultural institutions, until such refinements of science as drug allergies, food and pollen idiosyncrasies have been discovered, and it is time that the homeopathic student and teacher modify their range of information by a proper attitude toward their investigations.

Concentration of the attention. To gain the "set" of the mind for the study of materia medica, it is essential to have the concentration of the attention developed to a marked degree. I was very much interested several years ago in going through the Latin Quarter of Paris, to find stored away in the small rooms of the student artists many sketches that looked to my uneducated eye like fine examples of art; and asking why they had been set aside, I was informed that the same were "interruptions," that is, they had never been finished because the artist either could not gain his "set" for that piece of art, or was not in a mood to finish. I quote this as an example of what I mean when the statement is made "concentration of attention." With the thought and mind centered on the work at hand there is no doubt that positive mental forces are set at work, and that just as we are able to control their continuity will they produce positive results.

The positive results from the continuity of thought will show themselves in the ability of the student of materia medica to totalize or bring into concrete concept the case at hand. This attempt on the part of the mind to totalize is a kindergarten step in the homeopathic prescribing and also in its investigation. Again the act of attention develops an eye concept which individualizes the thought. To know what you are looking for and to be able to discriminate through the eye brings about a mental function of finer technic than that of ordinary observation, or, to put it in other terms, it individualizes or systematizes observation. Thus we have added another mental factor towards the production of a positive state of mind for the study of materia medica; and we repeat, it is almost useless to attempt to review research work without the proper mental attitude toward science, and particularly toward the homeopathic branch of that subject.

With the individualization of the symptom complex, the attention not only enables one to select the symptom, but also to minutely examine it for its correlations; so that instinctively symptoms are classified and arranged in logical squence. Generally speaking, concentration of the attention gives one complete control of his faculties for the work at hand.

Rapidity of Concept. Having concentrated the attention in the field of information at hand, the student begins then to have impressions made upon his mentality. To the dextrous student it is necessary that these concepts be made rapidly and with sufficient force to be a stimulus to action.

Association of Ideas. When the symptoms of a drug are discussed or the symptoms of a patient are investigated, the interpretation of those symptoms into associated language of drug action of pathogenesis is very important and necessary.

The first step, then, after having read, listened to or developed symptoms is the interpretation of these symptoms. This must necessarily vary with the varying degrees of intelligence with which we have to contend, for they will vary in verbiage. While these symptoms are no doubt real to the patient himself, and they are given concerning the drug in the best language known to the intelligence of the patient, they sometimes do not resemble our conception of the condition; therefore the idea of association will enable the student of homeopathy to understand and use for his mental pabulum many expressions that to the ordinary mind seem vague, or at times ridiculous. It is the duty of the student of materia medica to have a large range of information for the association of these ideas, so that the continuity of case history may not be lost, nor the acuity of his perception diminished.

To declare that one must sit down to study materia medica, and listen to an array of disjointed facts or fancies, styling them "symptoms," is a serious misunderstanding on the part of the person making such an assertion. To listen attentively to these "symptoms" shows a willingness on the part of the observer to associate ideas for the translation of drug symptomatology.

Ingenuity. Progress and efficiency in the study of materia medica depends upon the student's ability to energize himself. For, as in all psychological states, the "set" or "pace" of the mind (so to speak of the governing organ that coöperates in the production of nervous energy) is made by positive impressions and stimulations to the production of the maximum amount of energy. So on the line of ingenuity, it is true that by the formation of right habits of attention, *et cetera*, we may improve our materia medica, and the efficiency and ease of its study. There is no materia medica that so draws on the mental processes as does Homeopathic Meteria Medica.

From the simple equation of cause and effect of the grosser materia medica, to the finer psychological act of the intricate and delicate examination of symptoms, is a step far in advance along the lines of scientific medicine. With this known psychological truth operating, it is the duty of our teachers to energize the student with this truth, the result being the product of ingenuity in his translation of our materia medica and its provings.

The potential energies of the student are focussed in this one class; they represent reasearch, how previous provings were made. Or as Kaufman puts it, "A Formula to Solve Secrets: Thought plus Work minus Doubt equals Ingenuity." He says further: "What is possible is half done. It's just the half-done things that are impossible." The basic principle on which we rest our cause for the study of materia medica is that "all fixed obstacles must in the end succumb to thought and ingenuity." This throws a wonderful burden of proof on the shoulders of the practitioners of the present day, and the results obtained are to be judged by the "ingenuity" of the student and practitioner. But it likewise places the attending mind in a positive constructive atmosphere where all doubt is to be eliminated. By "doubt" we mean "fear."

The materia medica has proved to be a complete psychological unit, and as such has been demonstrated and proven. For this reason we can offer it to our students without fear and trembling. And in doing so, calling together the constructive forces of our laboratory aids and students' activities, can announce a result with positive convictions, proving those things which have been the subject of doubt in the minds of some of our clinical teachers.

Again, if our materia medica had been so ingeniously represented as have been the advertised therapeutic specialties of the day, by the natural law of selection they would have received a place in the armamentarium of the modern physician.

That cultural medicine respects and admires our materia medica goes without saying. That our materia medica has modified therapeutic methods is another foregone conclusion. That by ingenuity it can be still held in place is a psychological truth that cannot be set aside. By this I mean that it can be fitted for the service of mankind for generations to come, for had it not been a complete unit of truth its validity would long since have been attacked and set aside.

So that under the caption of *ingenuity* I hope to see many facts made clear that as yet are not understood, many truths that today are not demonostrable cleared up. In short, the future progress of our materia medica, if it is to be progress, must be founded on truth, and prosper along the lines of the ingenuity of the practitioner. This is a personal equation which must enter into all considerations, and progress along all other lines of scientific medicine has been made along these lines. Cut it and fit it to meet the requirements of the day in which we live.--The *Journal of the American Institute of Homœopathy,* February, 1917.

THE PROPER AND EFFICIENT DISINFECTION OF A HOUSE.*

By George W. Goler, M.D.,
Rochester, N. Y.

The word "proper" is defined as "being particularly suited to, appropriate to, correct, that which is set apart to special or individual use." The word "efficient" as "producing outward effects of a nature to produce a result, active, causative, able to act with due effect, adequate in performance, capable, competent."

The proper and efficient disinfection of a house must, therefore, be both corrective and active. It must be capable of accomplishing something. And, whatever it does, it must do that which it does so as to be capable of proof of its doing, or it fails in meeting an answerable definition of the proposition laid down in the title of this paper, as it was imposed upon me.

Now, disinfection to be proper and efficient, must be so in point of time as well as in activity. For, what may once have been proper and efficient, when in the state of our knowledge there appeared to be a capable performance, may now no longer be of a nature to produce the desired effect, because the increasing number of our observations may have taught us that our former facts led to erroneous conclusions. And, therefore, what may have been proper and efficient in the past is not so in the present.

Thus, if we are to do the proper and efficient disinfection of a house, we are to disinfect properly and efficiently, and not improperly and inefficiently. Returning again to definition as a proof of knowledge—not the writer's knowledge, because the writer disclaims any and all knowledge how properly and efficiently to disinfect a house—he begs leave to attempt to show both by definition and present-day practice, that there can be no such thing as "the proper and efficient disinfection of a house" by any so-called practicable means, and that the disinfection of a house is improper and inefficient, a fraud, sham, delusion, snare; that it is a useless, stale, flat and unprofitable procedure, devoid of sense, without justification, reason or excuse, both impracticable and impossible.

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* Read at Meeting of State Sanitary Officers Association, at Saratoga Springs, June 6, 1916.

Now to return for a moment to the dictionary and definition: A disinfectant is defined as an agent used for destroying the germs of infectious disease. As the preliminary report of the Committee on Disinfectants of the A. P. H. A. of which Surgeon-General George N. Sternberg was chairman, says: "There can be no partial disinfection of such material (*i. e.*, infected material); either infecting material is destroyed or it is not. In the latter case there is a failure to disinfect. Nor can there be any disinfection in the absence of infectious material." Written thirty years ago, these facts are as true today as when they were committed to paper.

It appears to the writer that there are two practical questions before us relating to disinfection; why did we attempt to disinfect, and why do we still attempt to disinfect. Let us, if we can, try to find a reason for these practices from the meager material that has come down to us from the historian. In doing so, and in endeavoring to interpret the curious practices of making smokes and smells to drive away disease, let us try to get the mental attitude of the ancients who believed to some extent in the curious practices of fumigation. They lived in an age of superstition—a period when magic, alchemy and astrology, the mysterious conjugation of planets and various electrical phenomena were believed to combine in the formation of some hidden and noxious vapors to cause disease, for the prevention of which, so-called disinfection and fumigation ware designed.

Chiefly among the Jews was the value of cleanliness in the prevention of disease clearly recognized. In Leviticus there is only one mention of disinfection, but there are many references to bathing and washing the clothes of the infected. "He shall wash his clothes and be clean." "His clothes shall be rent and he shall dwell alone." "He is unclean. He that is to be cleaned shall wash his clothes and shave off all his hair and wash himself in water that he may be clean." In the case of infected persons, that is, those infected with leprosy,—and the word leprosy was used as a generic terms for several forms of infection—it is related in the book of Leviticus, that "the plaster and other material be removed from the house and deposited in an unclean place without the camp."

In the Odyssey of Homer, after the slaughter of the suitors, and probably recognizing the need of a general cleansing, Ulysses calls, "Quickly, oh nurse, bring fire that I may burn sulphur, the cure of ills." This practice was, of course an example of ceremonial fumigation or disinfection, like references which are to be found in Pliny, Ovid and some of the other early classical writers. Similar references are found to early attempts at ceremonial disinfection by the burning of sweet-odored woods, spices and gums, and these ceremonies were practiced for the purpose of covering up the bad smells that were nearly always associated with disease in the olden time.

In the fourteenth century after plague had visited Italy for the sixteenth recorded time, it was ordered in Milan and other cities, that infected houses be ventilated for at least eight or ten days and purified by fire and fumigations of aromatic substances. Bedsteads were to be aired for at least four days, so that the noxious vapors, which were presumed to cause the plague, might be destroyed. In the sixteenth century plague was considered contagious and Haas says, "Isolation and disinfection came into use without any measurable effect against the plague. Horn, gun powder, sulphur, straw were burned in the streets, so that the statement, 'they are burning horn' signifies the plague is there and we can do nothing against it: a condition which we now express euphemistically by the odor of carbolic acid." Orders very similar to these were published by the Lord Mayor and Council in the London plague of 1665. We may even come down to the English cholera epidemic of 1832, when the mud in the gutters of the streets of London were a mixture of filth, refuse and chloride of lime.

From what has been said it appears evident that gaseous or aerial disinfection was, up to recent time, at least, a kind of ceremonial institution or superstitious practice designed either to placate or exorcise the demons of disease. Facts failing, we are, therefore, left to the delightful alternative of speculation, an act not entirely unknown to the practice of medicine of the present day. It is more probably that the early attempts at house disinfecting were due to practices which arose after the cave man or his later descendants saw the effect of sulphur fumes issuing from the rocks upon the insects, beasts, even man himself, when they came in close contact with these things. To the cave man accident or disease was the work of demons and the demons came out of the air. What could be plainer. The cave man was burned by the sun, wet by the rain, and the snow and the hail made him cold. Night and its shadows frightened him. The wind and its noises among the trees and the hills made strange sounds, and under the canopy of the stars or in the black of night strange noises and shapes appeared to attack him. Every thing that harmed him, even the missiles of his enemies, came out of the air, and what more reasonable than that the demons of disease came out of the air.

As man grew more civilized this conception of the relation of disease to the air seems to have had a kind of origin among all the peoples, especially those about marsh land or along rivers or about the coasts. Did they not know that it was the night air that brought disease to them? What could be plainer than this? If man shut himself up he sometimes escaped disease or he escaped often enough to make that escape a basis for an argument in favor of the danger of night air. At any rate, there was a mysterious something that appeared to man to come out of the air and attack him, and if it didn't come out of the air it was, as he was able later to prove to his own satisfaction, due to miasma that came reeking out of the ground and worked him ill. So the will-o'-the-wisps of the early air-born conception of disease continued from that time of our primitive ancestors, and to some extent still possesses the minds of many of the people and their medical advisers.

But man has usually been a being willing to compromise. In his primitive as well as in his more or less civilized state he has been willing to propitiate gods or demons when he could not exorcise them. What could have been more human than that he should strive to placate the demons of disease by offering to them incense that would please them. Disease came from demons; demons were associated with sulphur; sulphur ought to be agreeable or disagreeable to the demons; therefore, they might appease the demons of disease by burning sulphur in their honor. Later, when the germ theory of disease became known, sulphur and like substances were used, not to propitiate but to exorcise the demons of disease. Doubtless the use of sulphur as a disinfectant arose in some such way as this, and when later sulphur was shown to be more or less useless as a disinfectant, other aromatic substances came into use, because more money could be got for them and they were lauded by the makers as useful in preventing the dissemination of disease.

At the present time disinfection and disinfectants would die, were they not promoted by manufacturers and advertiser. Is there any other reason why a health officer uses a gaseous disinfectant, than because some manufacturer writes into his advertisement that disinfecting is a desirable thing to do? Certainly there is no evidence on good bacteriological ground that room disinfection ever accomplished anything. Well-known experiments undertaken in rooms occupied by patients with diptheria where the observers examined swabs from various articles of furniture in the room, includding bedding, only revealed diptheria bacilli present in 3 or 4 per cent. of several hundred observations. It is, therefore, the manufacturer of proprietary disinfectants who, for the purposes of selling his disinfectant, strives to tell the physician what to do with the particular disinfectant that he manufactures. And the manufacturer of proprietaries does the same thing with phylacogens, somnos and other like material from the ragbag of quackery. If a man uses a disinfectant, ought he not also to get his hair singed, wear an iron ring for rheumatism and health belt; suspend a bag of camphor about his neck and revert to the customs of the sixteenth century doctors, by carrying a Pomander box or gold-headed cane with perfume or disinfectant in the hollow head of the cane? He doubtless feels in the same position as the old doctor desired the woman might feel who threw away his medicine. Between the doctor and patient the following dialogue took place:

Doctor—"So you never took my medicine, Mrs. Jones. 'No.' You made a mistake, Mrs. Jones, a very grave mistake; because now you are well, Mrs. Jones, and you will never know what cured you."

To show what has happened in recent years, let me speak of the changes in practice in my home city. Twenty-five years ago it was the custom to disinfect vaults. Now we abolish vaults and screen them. Twenty-five years ago we disinfected school buildings. Not for twenty-five years have we disinfected a school building, but we now pay more attention to the cleanliness of our school buildings.

Five years ago we stopped all routine disinfection, although we occasionally disinfected. Now, for three years we have not disinfected any of the premises in the city after infectious disease and scarlet fever and diphtheria have in the past two years fallen off 30 to 40 per cent. In the Municipal Hospital during the past five years we have had more than 1,600 cases of infectious diseases. Frequently we have had scarlet fever, whooping cough or measles and diphtheria in the same wards, cared for by the same nurses. No disinfectant of any kind has been used in the hospital, not even on the hands of nurses or physicians. We keep the hospital and its belongings clean; the nurses have learned simply to wash their hands in soap and water and wipe them on paper towels. In these five years to there has been less than 2 per cent. of cross infection.

From these facts and these results, we know that disinfection is useless and expensive. We have learned much of the uselessness of disinfection from one of the foremost sanitarians in this country, Chapin of Providence. Through his teaching and the teaching of others, we have learned not to waste our money in buying useless disinfectants and our effort in applying them. We have learned, too, that there is no such thing as the "proper and efficient disinfection of a house."—*New York State Journal of Medicine*, January, 1917.

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CANCER.

By Eugene H. Porter, M.D., D.P.H.

MORTALITY FROM CANCER.

Of more than ordinary interest and worthier of more extended mention than is possible in a "Book Review." is the volume bearing the title "The Mortality from Cancer throughout the World," recently issued by the Prudential Insurance Company of America, whose chief statistician, Frederick L. Hoffman, L.L.D., F.S.S., F.A.S.A., compiled the book as an outgrowth of his work as chairman of the Committee on Statistics of the American Society for the Control of Cancer. It is a masterly piece of work, such as one acquainted with Mr. Hoffman's qualities and capabilities would expect, and the Prudential must also receive credit for being willing to allow its chief statistician and his assistants to devote so much of their time to the collection, classification, and interpretation of the statistics of cancer mortality, and for assuming the cost of issuing and distributing gratis the completed volume.

In Mr. Hoffman's own words, the lesson the book conveys is "that the actual frequency of malignant disease throughout the civilised world has been ascertained to be much more of a menace to the welfare of mankind than has generally been assumed to be the case, and that in contrast to a marked decline in the general death rate, cancer remains one of the diseases actually and presistently on the increase in practically all of the countries and large cities for which trustworthy data are available." This conclusion has been attacked by a few authorities, and Hoffman shows the error into which some of them have fallen, and concludes that "the burden of proof rests with those who maintain the negative point of view," after all, the question whether cancer is really or only apparently increasing is of secondary importance; "the supreme question is as to how malignant disease can be controlled, how it can be prevented, on the one hand, and how it can be successfully cured, on the other."

CANCER AND OCCUPATION.

The author concludes that "the fundamental concept of irritability as the direct or contributing cause of cancerous growth is apparently well sustained by occupational studies of the cancer problem." The chapter dealing with Cancer and Occupation is of special interest to homœopathic physicians as indicating the possibility of applying the rule of similia in the treatment of cancer by employing the agents which, in the several occupations appear to have causal relation to cancer formation. Tar, paraffin, and anthracene, aniline dyes, coal soot, sulphuric and sulphurous acids, the X-ray and radio-active substances, all seem worthy of investigation along these lines.

CANCER AND LIFE INSURANCE STATISTICS.

Examination of life insurance companies' data shows "that the earlier apprehensions regarding a family history of cancer were not justified by the facts ot subsequent experience;" "the disease is more common among persons of over-weight than among under-weights and, by inference, among the well-to-do and over-nourished than among the less proseperous element." "In both sexes the most rapid rates of increase are furnished by cancer of the alimentary tract, especially the intestine and stomach. Disease of the female breast also claims a rapidly increasing number of victims, while mortality from uterine cancer is diminishing; it would appear that child-bearing increases the risk of uterine and diminishes that of mammary cancer, and it is therefore only to be expected that the present decrease in fertility should be accompanied by an increase in mammary but not in uterine cancer."

CANCER THROUGHOUT THE WORLD.

In the group of years 1908-12, the highest cancer mortality, 76.6 per 100,000 population, was shown by European countries, while the lowest, 33.4, belonged to Africa. The American continent, with 65.7 sandwiched in between Australasia (73.0) and Asia (54.4). Standardized statistics for the United States shows a range of from 83.6 for Massachusetts to 48.3 for Kentucky; "the underlying conditions responsible for maximum or minimum cancer death rates are those of the immediate environment as affected by topographical, geological, climatological, sociological, racial, occupational and numerous other conditions, which are as yet but imperfectly known and understood." "There has been a rise in the recorded and specified death rate in the United States for every important group of organs or parts of the body affected by malignant disease." "The cancer mortality of females (in the United States Registration Area) exceeds the cancer mortality of males at all ages over 24. The actual excess is most pronounced at ages 55 to 64, but the relative excess is greatest at ages 35 to 44. The excess in the female cancer death rate is primarily due to the excessive frequency of cancer of the female generative organs and the breast." An analysis of the cancer deaths in the States of New York (excepting Greater New York) as returned to the New York State Institute for the Study of Malignant Disease, shows that "the average duration of previous disease was 22 months for males and 26 months for females." Mr. Hoffman concludes "that the local variations in cancer frequency throughout the world are primarily conditioned by local causes and not by faulty methods of diagnosis or defective methods of death registration."

"Crude local death rates, unless standardized for age and sex, require to be used with caution in efforts to illustrate the comparative frequency or infrequency of cancer in the different sections or cities of the United States. Unstandardized statistics for American cities show a maximum cancer mortality rate of 102·5 for San Francisco, and a minimum of 47.1 for Savannah." "In Southern cities the cancer death rate of the white population increased from an average of 52.7 during the period 1891-95 to 96.6 in 1913. The corresponding increase in the Nergo cancer death rate during this period was from 39.1 to 73.5. The relative increase in the rate for the White population of Southern cities was 83.3 per cent., in comparison with an increase of 88.0 per cent. for the Negro population." "The effect of the size of cities on the cancer death rate is not of material importance." "In the main, the statistics for civilized countries are an approximately trustworthy indication of the tendency of the cancer death rate to approach a maximum of perhaps 130 per 100,000 of population." "The conclusion seems to be warranted that "cancer frequency is to a limited extent determined by latitude, which, of course, more or less determines the climate and weather conditions; in other words, cancer is excessively common in the medium zone and relatively rare in the torrid or semitorrid zone."

HOFFMAN'S OBSERVATIONS AND CONCLUSIONS.

Cancer "results in an annual loss in the principal civilized countries of the world of not less than 500,000 lives, and in the United States (1915) of approximately 80,000 lives, and in this country the death rate is increasing at the rate of about 2.5 per cent. per annum." "The rarity of cancer among native races suggests that the disease is primarily induced, or at least increased in relative frequency, by the conditions or methods of living which typify our modern civilization." "Cancer was relatively of rare occurrence among our Negro population during a condition of slavery, but the frequency rate has rapidly increased during the last thirty years, until at the present time cancer of the uterus is proportionately more common among

Negro women than among the White women living under much the same conditions of life in the same localities." "Cancer is relatively less common among Jews living in conformity to the orthodox principles of their faith, and under normal conditions of life they are less liable to the disease, possibly because of their proverty and simple mode of living, especially to cancer of the uterus, than Gentiles of corresponding social and economic status." "Malignant disease is of extremely rare occurrence among the native Indian population of the United States."

"There is an urgent need of a national movement for uniform methods of tabulation and analysis of statistics, at least of the larger general hospitals and special institutions for the treatment of cancer patients." "Institutions which fail to provide the required amount of trustworthy and comparable statistical information fail materially in the full discharge of their duty towards their patients, their patrons, and the public at large."

"The public must understand that there are degrees of malignancy and that there is an increased probability of recurrence in the case of delayed operation." "The available evidence is entirely conclusive that by early diagnosis and prompt, radical treatment, a fair proportion of the lives now lost could be saved or prolonged for many years." "At the present time the percentages of cases successfully treated is relatively small."

PRE-CANCEROUS CONDITIONS.

"The statistical evidence of a precise correlation of cancer frequency to per capita meat consumption or its relative infrequency or rarity among vegetarians has not been established;" yet "the available evidence would seem to support the conclusion that malignant disease of the stomach is relatively much less frequent among non-flesh-eating races than among those not confined to a vegetarian diet." "It is in the direction of qualified and special research of the contributory factors in nutritional disturbances and their relation to cancerous processes that the most valuable results of cancer research are likely to be had."

"The relation of cancer to certain other important diseases is a field of research which as yet has received only superficial or incidental consideration." "Tuberculosis and cancer may occur in the same person at the same time, but the coincidence is apparently not common." "As far as the present available evidence permits one to judge, the relation of syphilis to cancer is only remote." "No exhaustive statistical investigations have been made to establish with a reasonable degree of scientific conclusiveness the coincidence of cancer and rheumatism in low-lying, damp, ill-drained sections of the country subject to a heavy rainfall, in contrast to high-lying, well-drained and semi-arid regions. Much general information is available, however, to prove that cancer in the former regions is more common than in the latter." "The evidence, as far as available, would seem to indicate that the actual correlation of cancer to diabetes is comparatively slight."

"Countless papers have been contributed to the parasitic theory of cancer, but in the main the conclusions of even the foremost authorities on the subject must be considered unconvincing. * * * The statistical evidence in support of the theory, particularly in regard to the so-called cancer-houses, cancer-streets and cancer-villages, is also largely in the negative." "In the light of our present knowledge cancer is not an infectious or contagious, or, in other words, a transmissible disease from person to person by contact or by other means of germ conveyance."

THE NON-SURGICAL TREATMENT OF CANCER.

"A large amount of statistical information has been published on the results of surgical operations, but the methods of statistical analysis have, as a rule, been crude and often not free from serious technical objections. In the case of the non-surgical treatment of cancer the statistical considerations are even more involved, and the conclusions advanced are less to be relied upon as impartial and accurate. * * * These observations apply with special force to radiotherapy as a possible solution of the apparently hopeless problem of an effective cancer cure by other means than radical surgical interference. * * * A review of the recorded observations on individual cases warrants the conclusion that radium is unquestionably an effective method of treatment in superficial cancers, particularly in the earlier stages of the disease. * * * There would seem to be much ground for accepting the conclusion that the best results, at lest in internal cancers, are likely to be obtained, first, by surgical interference, and, second, by subsequent radiotherapy. The practical question remains, however, as to where, under present conditions, the required amount of radium is to be obtained, and the outlook is far from encouraging that within a measurable period of time there will be sufficient radium for proper treatment, even in the principal centers of population".

THE VALUE OF CANCER STATISTICS.

"The American Society for the Control of Cancer was formed in 1913 to disseminate knowledge concerning the symptoms, diagnosis, treatment and prevention of cancer, to investigate the conditions under which cancer is found and to compile statistics in regard thereto. * * * In this direction would seem to lie the only hope of cancer cure and cancer control. * * * Qualified cancer research into the underlying conditions or circumstances accountable for the occurrence of the disease must needs rank as a problem of the first order of importance in medicine and surgery; but every branch of science related thereto should derive some benefit from the statistical evidence brought forward in this work for the sole purpose of facilitating the scientific study of what is, what ever has been and what is ever likely to remain one of the most complex problems of human life." "All of the more or less controversial aspects of the cancer problem urgently suggest the broadening of the scope of statistical research and the perfection of methods of statistical inquiry, towards the end that the whole truth of the cancer problem may be revealed to the immeasurable advantage of the human race."

The foregoing grouping of more or less extended quotations from Mr. Hoffman's book indicate its wide scope and its interesting, scientific and practical nature. The labour involved in its preparation must have been immense; the bibliography of the literature consulted covers nineteen pages of small type. It is the only work devoted to a comprehensive statistical study of the cancer problem, and it marks an epoch in its age-long history; it is impossible to conceive of future workers in the anticancer compaign not acknowledging their indebtedness to Mr. Hoffman and the Prudential Insurance Company of America.—The *North American Journal of Homœopathy,* October, 1916.

MATERIA MEDICA AND CLINICAL THERAPEUTICS VS. SERUM THERAPY.*

By W. J. Hawkes, M. D., Los Angeles Cal.

In discussing this subject I do not wish to be understood as condemning serum therapy unreservedly. Practically I know too little about it to warrant my taking such a position.

Admit "in principle," as the rulers of nations say, that the theory of serum therapy is sound, and that it runs parallel with *similia similibus curentur,* as it seems to do. I contend, however, that the practice is less safe and no more effective curatively, or as a prophylactic, than our practice of oral therapeutics.

It is less safe because thereby is injected directly into the blood a foreign substance of possible impurity. By this process nature's protective agencies—the germicidal secretions of the alimentary tract—are evaded. Nature is thus deprived of her only safeguard. The same substances taken by the mouth would be rendered practically harmless. Many examples might be cited of substances which are fatal when introduced directly into the blood, but which are comparatively harmless when swallowed.

Even though vaccines be prepared with the utmost care and cleanliness, there is still a probable element of danger from their administration hypodermically. But their preparation and distribution is a commercial proposition, and hired help of many hands must be employed in the process. The immense quantity manufactured and sold and used, renders it a physical impossibility for a few scientific men to do the work. Individuals who work for wages and who have no conception of, nor interest in the vital necessity of their being minutely careful and scrupulously clean in their work are not to be relied upon. Hence the danger of impurity. Why take the risk when we have means of exhibiting measures at least as effective for good and at the same time absolutely safe ?

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*Read before the Southern Cal. Hom. Med. Society.

The absurd claim formerly made that the substances injected as germicides did their work by bodily attacking the disease-producing germs and physically destroying them is now practically abandoned. The ground now taken is that the good work is performed by raising the opsonic index and increasing antibodies in the blood, which attack and destroy the inimical germs. This may be true and a valid claim. But in plain language that is simply saying that they thereby restore the blood and body of the patient to as nearly as possible a normal state of health. Perfect health is the best safeguard against bad germs or disease-causing conditions of whatever character. Any procedure which deranges the normal proportion and relationship of the varied constituents of the blood or other fluids or tissues of the body is inimical to the health of that body. Hence, even if the opsonic index could be raised above the normal, or if the number of antibodies could be increased above their normal proportion in the blood, the health of the body would be to that degree impaired. We cannot be either above or below normal in any of the constituents of the body and be perfectly healthy.

I contend, therefore, that whatever measures most easily, thoroughly and safely restore the body to perfect health and prevent departure therefrom is the best weapon at the command of the physician against sickness. This being true, I ask is there any better combination known for the accomplishment of this most to be desired end than perfect and comprehensive hygiene and our "science of therapeutics" ? Do you know of any such ? I surely do not.

The function of medicine is to attack and romove the contitutional inherent defect which in us all impairs our natural powers of resistance against disease-producing influences, and the function of hygienic measures is to obviate external exciting causes. These allies are unbeatable.

Vaccines are now being extensively employed in an ever-increasing number of diseases as prophylactic and curative measures, and extravagant claims are being made as to their efficacy in the cure and prevention of disease. Small-pox is the disease having the questionable honour of seniority in this list, and is the one having the greatest number of adherents having implicit faith in its efficacy as a prophylactic against variola. But the only evidence offered in support of this claim is the fact that small-pox has diminished greatly in frequency and severity since vaccination has been in vogue. But to me this evidence is far from conclusive or convincing, because the same evidence can, with as much logic, be urged in support of the claim that vaccination has been the cause of a like reduction in the frequency and severity of intermittent faver, yellow fever, cholera, the plague, etc. For all these diseases have been in the same period even more thoroughly eradicated than has small-pox.

Now I want it to be distinctly understood that I am not questioning or denying the efficacy of vaccination by scarification as a modifier or preventive of small-pox. What I do claim is, that it is a dangerous proceeding, and that we have a method which is as effective, and which is at the same time absolutely safe. I have personally convincing and accumulated evidence of the dire results often following vaccination by scarification, so that I have not for years vaccinated in that way, nor will I ever again do so.

The lamentable fact that responsibility cannot be placed when palpable injury results from vaccination with impure virus prevents publicity and punishment, and more than any other cause prevents exposure and investigation. As it is on no one concerned can responsibility for damage be placed, and the injured one is helpless and those responsible go unpunished. In any other case of malpractice, though having less evil consequences, punishment would follow.

Experiments by homœpathic professors in Iowa University convinced them that taking variolinum per orem was effective in producing the reaction characteristic of vaccine, and the results sought for by vaccination, and that absolutely without risk. Acting on this conviction they adopted that method of vaccinating school children, giving certificates that such children had been successfully vaccinated. Furthermore, these certificates were judged legal and satisfactory by the court in Iowa City, Council Bluffs and Chicago.

Probably the disease next most vaccinated against is typhoid fever. This is carried to such an extent in the army and navy that recruits are court martialed and punished by imprisonment and otherwise for refusing, when conscientiously opposed to it, to submit to vaccination. From "The Land of the Free and the Home of the Brave" viewpoint, this is a very serious matter. Furthermore, it is dangerons in another way beside the direct danger of the inoculation.

There is probably no other disease the direct cause of which is so easily and unmistakably traced and fixed as typhoid fever, and consequently so easily destroyed or avoided. With uncontaminated food and drink there need be no typhoid fever in any community. Again, hygiene—cleanliness—is the remedy and the only remedy needed as a prophylactic. Hence, the second source of danger is faith in the theory and practice of vaccination as all-sufficient protection against typhoid fever. If the people and health officials of communities are convinced that the only thing needed to guarantee them protection against typhoid fever, the need and importance of hygienic precaution against it will be neglected or lost sight of altogether. We all know how indifferent, through ignorance, probably, a majority of the dear people are to the ordinary rules of hygiene ; and this knowledge tells us that, even when facing an epidemic, how little attention they will give to these rules if they are assured by their medical authorities that they need have no fear if only they are vaccinated.

In the Russo-Japanese war vaccination against contagious diseases was not practiced. Only intelligent, extensive and most thorough hygienic measures were employed. Yet their record of freedom from typhoid fever was the wonder of the world. In the making of this record the authorities were strongly reinforced by the ambition of the soldiers themselves.

The Japanese soldier who dies in battle for this country, or who is crippled and discharged because of wounds, is a hero in the eyes of his family and friends. But if he dies or is discharged because of sickness, he is held in contempt, so he uses every intelligent effort to avoid sickness, while he braves death with a fearlessness that is almost fanatical.

They are intimately and thoroughly instructed as to all hygienic means of preventing all causes of disease, and cleanliness in its broadest sense is the koynote. Nor is this confined to themselves and their camp; the surrounding country and villages are thoroughly policed and cleansed. Especial attention is given to sources of water supplies. Boiling the water is the plan universally adopted. Apparatus for boiling water is attached to all commands.

Their ration of food is simple and not excessive, and consists chiefly of rice, and occasionally a little barley. But little meet is used, and is always prepared before being issued to the soldiers. Meat on the hoof is practically unknown in camp. All food is scrupulously protected against contamination, especially is it protected against flies.,

Excreta is buried or otherwise effectually disposed of.

The dead soldiers are cremated. The bodies are placed in ditches and covered with kerosene and burned. The use of internal antiseptic drugs was in intestinal affections tried and discarded as useless or even harmful. In short, all measures used and approved of aimed at *cleanliness*—the one great prophylactic against *all* disease.

Results, as compared with those of the Chinese-Japanese war, when these measures were not observed, are significant. In the former war the proportion was 1 wounded to 6.93 sick. One died of wounds to 12.09 from sickness. In the Russo-Japanese war the ratio of sickness was 1 to 1.07, and deaths 1 to 0.47 from sickness.

In the Russo-Japanese war the number of soldiers incapacitated by sickness was one Japanese to six Russians. The Russians made hygiene a neligible matter.

These records (official) speak for themselves and for hygienic thoroughness as the best means of preventing disease.

Following is a quotation from the report of the government survey anent typhoid fever :

STAMPING OUT INFECTIOUS DISEASES.

"Through their surveys they had practically eliminated typhoid fever from the town of North Yakima, Washington, although prior to the time of their survey in 1911 the deaths from typhoid in that little city had averaged between twenty-five and thirty a year. They had driven typhoid fever out of the rural districts of Yakima country, which, in 1910, had lost twenty-five lives through death by typhoid. In 1911, the year of their survey, the death rate fell to eleven ; in 1912, to three, and in 1913, deaths from typhoid disappeared from the county. Their survey had in Orange county, North Carolina, cut the death rate from typhoid in half. In Berkeley county, West Virginia, their survey, made in 1914, reduced the number of cases of typhoid in the county from two hundred and fifty-nine in 1913 to twenty in 1915, with no deaths at all in the latter year. In Dorchester county, Maryland, these gentlemen had seen their work reduce the number of cases in one year from one hundred and fifteen to twenty, and the number of deaths from fifty-one to three. Lawrence county, Indiana, a county which received one of their educational surveys in 1914, rejoiced in the fact that the number of cases had fallen from ninety-seven in 1913 to thirty in 1915, and the number of deaths from fourteen to five ; while in Wilson county, Kansas, their survey had cut the typhoid rate exactly in two."

In view of the foregoing, I ask, is there a competent physician who will assume the grave responsibility of advising his clientele that it is safe or prudent to rely on vaccination as a safeguard against typhoid fever, while not religiously guarding the possibility of eating or drinking food or liquid contaminated with excreta from those ill of that disease ? This, in effect, is what he would be guilty of doing were he to assure them that vaccination with anti-typhoid serum surely would prevent their contracting that disease.

Will any physician, deserving of that honorable title, claim that an individual may with impunity take into his body typhoid germs because he has been vaccinated with anti-typhoid serum ?

Since writing the foregoing I have had under my care a case which has a significant bearing on the matter under discussion.

The patient abraded his finger while doing minor surgical work. The affected arm became slightly swollen and inflamed. A swelling appeared on the inner and anterior surface of the upper arm, which was slightly inflamed and more or less painful, but was not in any degree distressing.

The surgeon in charge examined the blood and urged an operation. He also gave two intravenous injections in the abdomen. The patient's wife tried in vain to avoid operation, but the surgeon assured her emphatically that it was imperative.

What the serum was, or what the operation was expected to accomplish, I do not know. A physician friend of the patient who was present through the operation said he saw no object to be gained by the operation, and that there was no pus nor any other discharge from the wound except blood. The wound made was about three inches long, and to the bone. The surgeon bored with his fingers up into the axilla. No enlarged glands were found. In short, no indications that any good could be accomplished by operation. For my part, I cannot for the life of me imagine what the operation was expected to get rid of. No abscess, no pus and no enlarged or infected glands. The operation was on Tuesday. The serum was injected on the following Thursday, and erysipelas set in on Friday.

I saw him first on Sunday, August 27th, two days later. All information of the case I had previous to this, my first visit, was given me by the friend, physician mentioned, and the wife of the patient.

When erysipelas set in the patient, who is a staunch homœopath, and knowing a good deal about drugs and medicines, insisted on my being sent for and being given full charge of the case in all matters except what was strictly surgical. This was agreed to by the surgeon and myself. The situation was not at all to my liking, and I had suggested that it would please me if a surgeon of my own school were called. The surgeon was very nice about it, and expressed perfect willingness that this should be done, but surgeon and patient were friends and the surgeon had operated in the family before, so it was agreed that he should continue to dress the wound, while I took charge of the medical and dietetic treatment.

The erysipelas had begun on the shoulder of the affected arm. The absurd method of drawing a scar line to prevent spread of the skin inflammation had been resorted to without apparent effect. The flush extended so that it covered practically the entire surface of the body from the hair line of the scalp to the feet.

I have never in all my experience seen a case act as this one has during the six weeks of my attendance. The patient would apparently respond to the action of each remedy administered, and then, without apparent cause, would relapse and become a little worse then before. The erysipelitic flush would almost disappear and again return, to again disappear and again return. The temperature would rise to 103°, and in twelve hours or less recede to normal, and even to a degree below normal. The pulse was at all times out of proportion to the temperature, running as high as 148. To-day (October 10, 1916) the temeprature is normal, while the pulse is 140. Mild delirium set in about two weeks ago. At first the delirium was characterized by the baptisia symptom; his legs were out of place and he was distressed lest they get away from him. *Baptisia* in twelve hours corrected all that, and at the same time the temperature dropped from 102° to normal. Later, the character of delirium changed to fear, causing the patient to want to get away; at the same time there was profuse warm sweat over the upper part of body, and the eyes had a frightened look. *Belladonna* acted as promptly as had *Baptisia.*

The diet was confined to fruit juices, with a portion of lamb broth with a little well cooked rice in it, according to appearance of tongue and desire of patient He was very thirsty during the first three weeks, and had all the boiled water he would take.

Retention of urine began about a week ago, with occasional involuntary dribbling. About the same time slight involuntary stools began. The bowels had given but little trouble. It is now necessary to catheterize.

The patient is in a critical condition, and the prognosis is doubtful. Dr. Shepherd saw the case with me about a week ago.

Now I am convinced in my own mind that the vaccine injection was the chief cause of the trouble. Also I am sure that the operation was a mistake. The wound is perfectly healed.

I am glad I have not to bear the responsibility of those injections of (Anti-what?) serum on my conscience. I can say the same of the number of other such injections.—The *Homœopathic Recorder*, March 15, 1917.

EDITOR'S NOTES.

Hereditary Deformity of the Fingers.

Dr. H. Drinkwater reported to the Pathological Section of the Royal Society of Medicine, on February 13th, a remarkable case of phalangeal synostosis hereditary through fourteen generations. The thumb and index were normal; in the middle finger the terminal joint was free, but the next, that between the middle and proximal phalanx, was but slightly movable; in the ring and little finger these phalanges were quite continuous. The condition was symmetrical on both hands. As to the feet, all the toes excepting the hallux were affected like the ring and little fingers. The patient's father was married twice; one of the patient's half-brothers presented the same abnormality, as did also the father and the paternal grandfather. He himself was a direct descendant in the male line from the first Earl of Shrowsbury (d. 1453), and when the body was exhumed in 1874 it was discovered that the fingers of the Earl exhibited a similar variation. The mode of the inheritance of the malformation among the recent members of the family showed that it behaved as a Mendelian dominant. Dr. Drinkwater expressed the opinion that there was not any genetic relation between this condition and that of brachydactyly.—The *British Medical Journal,* February 24, 1917.

An American Opinion on Birth Control.

Dr. T. D. Crothers, who read a paper recently before the Medico-Legal Society of New York upon the subject of birth control, that is to say, of the prevention of child-production by unsuitable parent, is an uncompromising advocate of State-exercised compulsion in such matters. The object sought is one which all will admit to be desirable, but whether the means necessary to attain it with anything approaching to certainty will ever commend themselves to the public in our own country is another matter. It is enough to say that appeals to potential parents of the undesirable class are not likely to produce any general results, and that it may be rash to prophesy what future generations will consider expedient. In the United States, as in European countries, it is observed that the fewest births are found in the families best able to support and bring up children. On the other hand, in families where conditions of heredity and environment are most adverse the largest numbers of births are found. In these circumstances Dr. Crothers recommends the compulsory sterilisation of criminals, idiots, epileptics, inebriates, and drug-takers, the destruction at birth of abnormal or defective children, and he would "hold the parents responsible and make it the highest crime to attempt to give birth to defective children." The last-mentioned offence appears to be rather obscurely defined in the summary before us, but the intention is fairly clear. Dr. Crothers cites, as an illustration of the spirit in which he would legislate, an old Chinese custom, which consisted in fining the parents of an assassin as well as executing the criminal, the parents themselves being put to death if a second of their children committed a similar offence.—The *Lancet*. February 3, 1917.

Type-reading for the Blind.

AT the meeting of the Röntgen Society on February 6th Mr. Fournier d'able, D. Sc., demonstrated his optophone, an instrument designed to enable sightless persons to read ordinary type by ear. The device depends upon a careful optical and telephonic system in which the action of selenium in response to light plays an essential part. The greater portion of Dr. d'Able's lecture was, indeed, concerned with the properties of selenium, the rare element which stands on the threshold between metals and non-metals, and which was discovered by Berzelius exactly a hundred years ago. The applications of selenium in photometry, telegraphy, phototelegraphy (or the transmission of images along the wires), television, and the automatic lighting of lighthouses and buoys are manifold, but some of them at present are of more theoretical than practical interest. The experiments with the optophone were far advanced before the war, but it is essential to have an intense line of light, such as in obtainable by means of the Nernst lamp, and since the war began this particular filament could not be obtained. Lately, however, it was found that the new half-watt lamp will give the line of light required, and the experiments were renewed. The lamp is made to illuminate a perforated disc which revolves by the action of a motor, and the image of luminous dots thus produced is made to converge upon an aperture in a slab over which a line of letterpress is slowly passed. The different patterns of light thus reflected from the type fall upon a set of selenium bridges which are connected by a telephone relay, and a musical frequency is set up. The sounds which are carried through to the telephome receiver are characteristic of each letter in the type, and what the learner has to do—a task obviously requiring long practice—is to pick up this code, and recognize the note which each differently shaped letter of the alphabet makes as it passes. The maximum sound is heard when the paper exposed through the aperture is white and the minimum when it is black, and the range of difference between these extremes covers all the configurations of printed characters. The system may equally be applied, given patience and memory on the part of the learner, to other letterings than Roman. Dr. d'Albe's demonstration was carried out with large single letters, and it appeared to be rather the interruptions than the sounds themselves which were distinctive. By using a focussing device he claimed that it was possible to read print of ordinary size, and that a system of careful alignment would enable the learner ultimately to follow the column of a newspaper or a page of a book.—The *British Medical Journal*, February 17, 1917.

Random Remedies in Rhyme.

By Lewis Pinkerton Crutcher, M.D., Long Beach, Cal.

Nux Vomica is mean,
Sulphur is lean,
Pulsatilla is sad,
Chamomilla is mad,
Platinum is "horrid,"
Phosphorus is florid,
Calcarea Carb. is chubby,
Ignatia suspects "hubby."

Stramonium is crazy,
Sulphur is lazy,
Pulsatilla is weepy,
Opium is sleepy,
Nux Vomica is dizzy,
Bryonia is busy,
Graphites hair mats,
Belladona sees rats.

Aconite is afraid,
Baptisia is abed,
Arsenic is burning,
Natrum Mur. isn't learning,
Lachesis is left-sided,
Phosphorus, too—provided!
Sepia is spotted,
Nux Vomica is besotted.

Lycopodium is right,
Mercurius—at night,
Rhus Tox is moving,
Puls. pains are roving,
Cactus is squeezing,
China is freezing,
Zincum is fidgety,
Baryta is midgety,
Belladonna is throbbing,
Nux Moschata is sobbing.

Hepar Sulphur is boily,
Natrum Mur. face is oily,
Arnica is bruised,
Ignatia is abused,
Nux Vomica is urged,
Aloe is purged,
Belladonna is dilated,
Lycopodium is satiated,
Gelsemium is stupid,
Ignatia hates Cupid.

Platinum is troubled,
Colocynth is doubled,
Hyoscyamus is suspecting,
Ipecac is ejecting,
Podophyllin is prolapsed,
Camphor is collapsed,
Cimex is contracted,
Coffee is distracted,
And so are you, perhaps.

The New England Medical Gazette, February, 1917.

Economy in Glycerine and Sugar for Medicinal use.

Our readers know well enough the great national call there is on glycerine for the manufacture of munitions of war and also the shortage of sugar owing to reduced importation, and they will appreciate any information as to how these commodities may be spared by the use of substitutes which, in the majority of cases, may be made to serve the same purpose. It is well known, for example, that substances for which glycerine is ordinarily used as a solvent are usually sufficiently soluble for all practical purposes in other media, while chloroform water is an excellent sweetener as well as preservative. As a demulcent glycerine can be replaced by a number of mucilaginous substances available, while as a laxative the resources under this category are so numerous as to put glycerine out of court for the purpose, except, it may be, in very special circumstances. Similarly, as an ingredient of lotions and douches, other solutions, saline and alkaline, are equally effective. As regards sugar as a flavouring agent, it can be spared easily and replaced by chloroform water, aromatics, and other well-known agents which serve to mask disagreeable flavours. In regard to other drugs, in connexion with which it is well that caution should be observed, it may be noted that veronal, carbolic acid, paraldehyde, phenacetin, and phenazone are still in short supply, while atropine, lanoline, the salicylate group, and thymol are now being made in this country in considerable quantities. High prices, however, still prevail, and it is desirable that the use of these drugs, in the interests of economy, should be confined to urgent cases. Eucaine and novocaine are being manufactured on a substantial scale in this country, and these valuable drugs may be used with some freedom where their application is indicated.—The *Lancet*, February 10, 1917.

Syphilis without Chancre in Women.

THE occasional absence of chancre in certain cases of syphilis, particularly in women, has long been recognised. At a recent meeting of the Acadèmie de Mèdecine of Paris Professor Gaucher brought forward an interesting view of this phenomenon. Chancre being simply the reaction of the epidermis attacked by the virus, it is obvious that if the inoculation takes place more deeply, by introduction of the virus into the general circulation, the reaction will be absent. Professor Gaucher gave as an example the case of a surgeon who in operating on a syphilitic patient wounded himself deeply with a bistoury. He never had a chancre, but six weeks later the roseola appeared. Another case was related to him by the late Professor Fournier. At the Saint Louis Hospital psoriasis was being treated by intramuscular injections of yellow oxide of mercury. One day a patient suffering from psoriaform syphilis, which was mistaken for psoriasis, was injected. The same needle was used to inject a patient suffering from psoriasis and six weeks later the roseola appeared. In women Professor Gaucher admits that the chancre is frequently overlooked and cannot be found if the examination is not made until the end of two or three months, although in men the chancre does not usually spontaneously heal so quickly. But there are indisputable cases in which a man has contracted a chancre in extra-marital relations, has had intercourse with his wife before he knew he has infected, and, when enlightened as to the danger, has had her examined as often as four or five times in a month. Although the external genitals, vagina, and cervix have been examined with the greatest care and nothing has been found, yet secondary symptoms have appeared a few weeks later. In such cases Professor Gaucher not only has failed to find a chancre, but even any enlargement of lymphatic glands. His explanation is as follows. Chancre can exist only on the skin or on the mucous membranes covered with stratified epithelium, such as the mouth, prepuce, vagina, and anus, which are all derived from the skin. Rectal chancres may be urged as an objection. But Professor Gaucher thinks that these would be more correctly described as chancres of the upper part of the anus. All these surfaces are not absorbent of liquids, while the mucous membrane covered with columnar epithelium is. Professor Gaucher therefore suggests that in the cases of syphilis in women without chancre the virus is carried into the uterus. If impregnation takes place the woman, of course, is infected through the fœtus. But, if it does not, she can still be infected—by absorption of the virus through the mucous membrane. These cases of "spermatic infection" show certain characteristics. Like conceptual syphilis, the disease remains latent or progresses slowly without any great outbursts, and manifests itself by late lesions. Thus a woman who had not suffered in any way previously showed gummata on the legs 30 years after marriage. The husband admitted that he had syphilis 10 years before marriage, but for a long time before marriage he had no ulcer or contagious lesion of any kind. Pregnancy never occurred. Another woman was seen for leucoplakia of the tongue, and a third for disseminated sclerosis with a similar history.—The *Lancet*, February 10, 1917.

The Dressing of Burns with Paraffin Wax.

Sir Arthur May's prompt application of the remedy to the requirements of the Navy has drawn fresh attention to the treatment of burns by a proprietary preparation called ambrine by its inventor, Dr. Barthe de Sandfort. As, however, the preparation is a secret one controlled by a company in Paris, the treatment is not as readily accessible as some of our correspondents desire. We can refer these to the experience of Lieutenant-Colonel A. J. Aull, R.A.M.C., who stated in the *British Medical Journal* of Jan. 13th that the results obtained by a mixture of home manufacture in a military hospital have surpassed those obtained by the use of ambrine or any other preparation. He gives the following formula for its preparation :—

Resorcin	...	...	...	1 per cent.
Eucalyptus oil	...	...	...	2 ,,
Olive oil	...	...	...	5 ,,
Soft paraffin	...	...	...	25 ,,
Hard paraffin	...	...	...	67 ,,

The hard paraffin is first melted and the soft paraffin and olive oil are stirred in. The resorcin is next added dissolved in half its weight of absolute alcohol, and finally the eucalyptus oil when the wax has cooled to about 55° C. If necessary, the resorcin may be replaced by a quarter of its weight of β-naphthol. Colonel Hull adds that the application of this No. 7 paraffin, as it is called, to ulceration following frost-bite has been as successful as in the case of burns. Other uses will doubtless suggest themselves for a soft impervious casing to wounds which can yet be readily peeled off without pain or disturbance to the delicate processes of repair.—The *Lancet*. February 17, 1917.

The Health Board Nuisance.

The following is from a New York newspaper: "It seems as if it would be necessary soon for the common sense of the community to call a halt upon the activities of the health boards. The present tendency is to strive for the prolongation of life by making life not worth living."—The *Homœopathic Recorder*, September 15, 1916.

Increase in Malignant Disease.

The *British Medical Journal*, quoting Hoffman, writes:

The main conculsion reached is, briefly, that actual frequency of malignant disease throughout the civilized world is much more a menace to mankind than has generally been assumed to be the case.

Also:

Arguments that are apparently sound are brought forward to show that the increase in malignant disease is real, and not the result of improved diagnosis, more scientific classification, or a changed age distribution. Thus, combining the returns for the United Kingdom, Norway, Holland, Prussia, Baden, Switzerland, Austria, the cities of Denmark, the Commonwealth of Australia, and the Dominion of New Zealand, it appears that in 1881 these countries had an aggregate population of 98,380,000, and 44,047 deaths from cancer, equivalent to a rate of 448 per 100,000 of population. By 1891 the rate had increased to 59.6 by 1901 to 76.3, and by 1911 to 90.4. Thus during thirty recent years the cancer death-rate in these countries, which are typical of the civilized portion of the world, has more than doubled.

It is also stated cancer is "exceptionally rare among primitive peoples." None of the authorities quoted can explain the reason why cancer and other malignant diseases so steadily increase in spite of better living conditions, food, sanitation, and the like, in the civilized world. It is at least fair to ask if this steady increase in malignent diseases may not possibly be due to be increasing use of the many vaccines derived from amimals ? These agents were the cause of the terrible cattle plagues that have appeared in the United States.—The *Homœopathic Recorder*, September 15, 1916.

Prophylaxis of Speech Defects.

Parents, nurses, teachers and general practitioners of medicine should know something about the prevention of speech defects. 1. Speech is imitated sounds, so let the source be as perfect as possible. Let mothers and nurses speak slowly and distinctly. 2. A child should not be forced to listen to and copy the speech of ignorant, uneducated foreigners serving as nurses, maids, cooks, etc. 3. Children in age from the beginning of speech formation (8 to 12 mo.) should find no difficulty with the consonants b, m, p, f, v. Later on when the teeth are fully erupted they can form, with the aid of the tongue and the anterior part of the hard palate, the consonants d, s, i, r, n, t and z. This should be from 12 monts to 2 years. All other sounds made with the tongue and posterior portion of the hard palate, hard g, j, ng, r, k, ch, come last in time, and are very frequently mispronounced. A very good plan to get children acquainted with good speech is to tell them stories and fairy tales in a slow and modulated voice. Questions by the child following the story will develop both thinking and speaking. In the treatment of speech defects at the Paren-Teacher Clinic in Los Angeles, results have been good. Stammering boys in the 7th to 9th grades, from a total inability to answer simple questions, have learned to recite poems, prose, etc., at the commencement exercise of their schools. It is possible for lispers to receive treatment at home from someone who has the necessary patience with children (rare quality I find). I usually give 2 or 3 treatments per week and give exercises to be practiced every day at home.

Calisthenics, correct breathing and posture, and attention to the general health must not be neglected.—The *North American Journal of Homœopathy*, October, 1916.

Anaphylaxis.

A very esteemed contemporary prints a paper with the title "Observations on the Treatment of Anaphylaxis." The writer starts in by saying that he does not know anything about "the causation of anaphylaxis." Looking in a late dictionary you will read that "*ana*" is a "privative" and "*phylaxis*" stands for "protection." Consequently, it would seem that as the cause of anaphylaxis is what seems to be a mistaken prophylaxis, the proper treatment for the prevalent anaphylaxis is to stop the law-enforced prophylaxis as embodied in serum, vaccines, etc., which are admitted to be the cause of the anaphylaxis for which treatment is sought. No cause, no disease.

The writer of the paper under consideration is Albert S. Leyton, of the University of Leeds. *The Lancet* publishes it.

Now, not to wrong Dr. Leyton, we quote rather extensively from his paper as follows. He writes :

This method *(i. e.,* the modification of the serum so as to produce prophylaxis without anaphylaxis) has been attempted by several manufacturers of antitoxic sera, so far with but little success. There is no doubt that different samples of horse serum, as tested on the excised rabbit's heart, vary much in toxicity, and, further, that the amount of toxic substance diminishes after the first week of keeping. It is partly on this account that the sera from several horses are mixed and kept a little while before being issued for sale, although the accidents which happen with commercial sera show that these precautions are insufficient. Filtration through a porcelain candle will remove a very large fraction of the toxin, but unfortunately also of the other essential elements. The candles used commercially for filtering antitoxin sera also allow the anaphylatoxin to pass through.

Pasteurization of the serum and the attempts to eliminate the toxic element by precipitation methods are both unable to make the serum innocuous. This is not surprising when we remember how very resistant the sensitising molecule is to heat and many powerful chemical substances, and the toxic molecule, although weakened, is not destroyed by the moderate heat which it is possible to apply to antitoxin sera.

We have tried the effect of various chemical substances, such as iodine, chlorine, eusol, and potassium permanganate, and have found, as indeed others have already done in the case of some of them, that the toxic element cannot, by these means, be entirely eliminated. In a small number of instances the serum, after contact with iodine or eusol, did not induce anaphylaxis, but this result was not constant. For the time being, therefore, we are reduced to an attempt to prevent or to treat symptoms. The rapid onset and course of the anaphylactic shock makes the application of treatment, even if one is prepared for it, a matter of great difficulty, and the ordinary analeptics appear to be of little use. .

After this the essayist adds: "Nevertheless, the treatment of anaphylaxis, at least in the guinea-pig, is not entirely hopeless." Whether it is hopeless in human beings subjected to the so-called prophylaxis that is the cause of anaphylaxis, deponent saith not. Naturally the question presents itself, Why not drop serums and return to medicine? Possibly because some men today are not free, but must follow their leaders.—The *Homœopathic Recorder*, September 15, 1916.

Gleanings from Contemporary Literature.

CIRCUMCISION.*

By James Krauss, M. D., Boston, Massachusetts.

Circumcision with subsequent amputation of the prepuce is not a trivial, negligible operation, but an important surgical measure to reveal hidden afflictions or to remove and prevent disease of the prepuce and the contents of the subpreputial cavity, the glans and the frenum, and really should be better performed and more frequently practiced.

There have been three kinds of circumcision in practice throughout history,—military or mutilating circumcision, ritual or sacrificial circumcision, surgical or sanitary circumcision.

Mutilations of the penis and the prepuce were not uncommonly practiced in ancient days (Hovorka, Zderas, Laurent). Saul, the king (Samuel, I, xviii, 25, 27) desired "an hundred foreskins of the Philistines, to be avenged" of his enemies, and his general, David, brought him two hundred. This was *military circumcision*, an operation no longer openly practised, I believe, but the sentiment underlying it cannot be said to be entirely extinct. Men no longer go out to divest their enemies of their foreskins, but still prefer that rather than themselves their enemies be divested of such an emblem of virile prowess. The foreskin is still considered a precious possession, too precious to be parted with recklessly, even if diseased. At a time when Rome divided its subjects into such as were circumcised and such as were not circumcised, Celsus proposed his celebrated operation for the plastic restoration of the prepuce, and many that had been circumcised as also many that had a congenitally undeveloped or entirely absent prepuce saved themselves from expulsion and even worse impending disaster by submitting to the posthioplasty of Celsus.

Later, Remondino, to save the prepuce for the glans, slit the prepuce on the dorsal and the frenal surfaces in the median line and made two lateral flaps, the celebrated "dog's ears," which may be occasionally seen even in these days as results of poor modern operations on the prepuce. As recently as 1898, Daggett proposed in the *Medical Record* a longitudinal incision on the dorsal suface of the preputial skin beginning some distance posterior to the preputial orifice and a longitudinal incision on the frenal surface beginning at the preputial orifice, then suturing each of the two incisions transversely. This operation is to do away with phimosis and leave an ample prepuce to protect the glans. While the removal of a phimosis is acknowledged to be necessary, the retention of the normal sensibility of the glans is taken to be equally necessary. Proof, however, is lacking that the glans must lose its native sensibility if it loses its prepuce, and happily the operation of true surgical circumcision is still practised and will be practised for the benefit of the children, the adults and the old of mankind.

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* Written for the Bureau of Genito-Urinary Diseases. Read before the Surgical and Gynecological Society of the American Institute of Homœopathy at Baltimore, June 29, 1916.

This must be affirmed in these days when men can still argue that no foreskin is too long for the growing penis and object to circumcision because the foreskin is necessary for intromission and heightening of aphrodisia in copulation. Orlipsi, Græser, Buford—Buford as lately as in the May issue of *Surgery, Gynecology and Obstetrics* of 1916, page 548—favor to an appreciable extent forcible dilatation and retraction of the tight, long prepuce. Forcible dilatation and retraction of the narrow preputial orifice, even when done with fingers and gauze or sponge, is not necessarily a bloodless reduction and, with the use of three-bladed dilators *à la* Nélaton and Verneuil or two-bladed instruments *à la* Saint. Germain is not a dilatation but a divulsion. Divulsion of the unyieldin g nd yieldable preputial ring, for the constricting annulum præputii is in the inelastic internal preputial membrane and not in the elastic external skin, means tearing. Tears result in cicatrices. Cicatrices contract and contracting cicatrices in the preputial orifice are the main cause of relapsing phimosis. Even repeated divulsion will not and cannot remove the poultice-like heat-and-moisture-producing long and narrow prepuce. Patients carrying a phimosis are patricularly predisposed to venereal infection and even carcinoma of the penis. Though the smegma derived from the subpreputial glands of Tyson aids in lubrication, a sufficiency of smegma is assured by the glands left about the corona, the coronary sulcus and the frenular fossæ. Finally, it ought to be plain that for satisfactory intromission and copulation not a prepuce but a penis is really requisite, and that the most evident cause of diminutive penises is a long narrow prepuce preventing the free development of the glans by strangulation, irritation, inflammation, adhesion.

Ritual circumcision of male children dates from the covenant, we have told in Genesis xvii, 10, that God made with Abraham. I have sometimes wondered when treating an occasional case of clitorism, why famele children were not included in this ritual circumcision. Up to nearly the time of birth there is epithelial union between the internal preputial membrane and the glans of the clitoris as of the penis. To leave the glans of the clitoris in this condition after birth is to leave an inhibiting defect just as when the glans of the penis is left in this condition. Girls suffer from irritations of the clitoris and its hood as do boys from irritations of the panis and its prepuce. Women suffer from frigidity and ·hypererethism as do men from impotence and precipitate ejaculations. The Abyssinian woman is not the only woman that requires circumcision. Coitus and micturition are interfered with by hypertrophied prepuce of the clitoris in the West as well as in the East, in the North as well as in the South. The prepuce of the clitoris makes a door for the entrance and retention of smut and disease to the glans of the clitoris as the prepuce of the penis makes one to the glans penis. The subclitoridic cavity frequently contains an overabundance of smegma. The prepuce of the clitoris often acts like a veritable restraining hood so that the glans of the clitoris cannot develop freely. Masturbation and agglutination of the clitoris and its prepuce and the prepuce with the labia minora are not infrequently found together. However, God commanded only: "Every man child among you shall be circumcised." Abraham acquiesced, and the ritual circumcision of male children made a world of Jews. Then Cornelius, the Roman, native to Epicurean life and sensitive to his personal happiness as he uuboubtedly was, rebelled. God "shewed" Peter that he 'should not call any man common or unclean" (Acts x., 28), and the unwillingness of Cornelius to be circumcised for fear of the incidental pain made him the first uncircumcised Christian and Christianity became the acceptable epic of the Western world and the world a world of Christians. Next to the desire of retaining the preputial appendage with which nature had decided to bless or curse mankind, the fear of incidental pain is still the main obstacle to the more frequent performance of circumcision, in many respects, the most important, and, in all respects, the least injurious and the most beneficial of all surgical operations.

We are concerned, of course, only with *true surgical circumcision,* an operation that is called for in congenital anomalies of the child, the cicatricial narrowings of the adult, the indurating inflammations of the old :—in recurrent balanitis, posthitis, balanoposthitis, apprrent and concealed chancre, chancroids, plaques muqueuses, tertiary, herpetic, gangronous and phagedenic ulcers and fissures with and without perforation ; in papillomata, cornua, elephantiasic or hypertrophic elongations of the preputial skin ; in retentions. and concrements of' smegma, pus and urine in the subpreputial cavity (the removal of stones the size of a hen's egg has been reported by Bidder and Bègin ; Dèmeaux removed 38 and Brodie even 60 facetted stones from the subpreputial cavity) ; in partial and total, mucous and fibrous, soft and hard, superficial and deep, narrow and broad adhesions and cicatrices of the prepuce to the glans, dorsal, lateral, frenal ; in imperforate prepuce or perputial atresia with its preurethral bladder ; in narrow preputial orifices giving rise to evident phimosis, congenital or acquired, absolute or relative, atrophic or hypertrophic when the prepuce cannot be retracted to uncover the glands, or evident paraphimosis, edematous or gangrenous, when the prepuce, having been retracted behind the corona, cannot be returned, or more or less concealed stenotic conditions made apparent only in the course of erection or in the course of a thorough genito-urinary examination.

A constricting prepuse must result in injury to the individual, and therefore, as Rèclus says, requires removal. The removal of a constricting prepuse by proper surgical circumcision has repeatedly changed uncleanly, nervous, irritable, marasmic, bedwetting, backward, masturbating boys and girls into clean, healthy budding men and women, for surgical circumcision takes in both men and women ; has frequently stilled undue amorousness and recouped lost power ; has overcome urinary retention due to preputiala tresia, dysuria due to pinhole prepuce, reflex coughs and convulsions, pressure hernias and prolapses and hydroceles has helped to reveal and thus made possible to cure concealed infections, and has restored many and many a time the equilibrium of an unbalanced nervous system by restoring the pinched, strangulated or strangulating terminal sensory filaments of the glandular cerebro-spinal nerves and the vasomotor filaments of the great sympathetic. I need mention only Trousseau and Matthieu of France, Roser and Nussbaum and Englisch of Germany, Thompson and Davies-colley and Ballance of England, old Sayre and our own Pratt of America to prove, if further proof be indeed necessary, that proper surgical circumcision is curative for the local, obstructive, reflex urinary and genital conditions complicating a narrow prepuce and is at the same time preventive against venereal infections and cancer of the penis.

True surgical circumcision, however, consists of more than circumcision. We do not merely circumcise. After circumcision we amputate or excise. For the reason, the operation is better spoken of as *posthectomy* when we circumcise and amputate the prepuce, and as *posthotomy* when we merely incise the stenosed portion of the preputial mucosa. The operation of posthectomy, as I am in the habit of performing it in my office surgery on ambulant cases, implies the consideration of the following steps :

1. Asepsis.
2. Local anesthesia.
3. Circumcision of the skin and longitudinal dorsal incision of the skin and mucosa.
4. Amputation of the mucosa, excision of adhesions and ulcers, construction or reconstruction of the frenum.
5. Coaptation.
6. Dressing.
7. After-treatment.

Asepsis.

Perhaps more than any other step, proper asepsis prevents the postoperative pain in the surgically traumatized preputial and penile tissues of clean cases after the local anesthetic has done its works. The septic cases that come to operation must be brought to as nearly an aseptic state as possible to prevent further extension of sepsis. If we avoid sepsis, reduce the mechanical, thermic, chemical trauma of the tissues to a minimum, and coapt the wound-tissues without the abnormal pressure of mouse-tooth forceps or cutting, dragging sutures, prevent the extravasation of blood and serum into the loose cellular tissue in the sac between the preputial skin and the mucosa, we may look forward to a comfortable, painless postoperative state. For these reasons we prepare (1) for an aseptic field, and (2) for an aseptic set of instruments that will cut clean and sharp and will not scrape, hook or pull unduly. The pubic hair may or may not be clipped, but must be kept out of the field. In a clean, retractable case, the penile and preputial surfaces are cleansed with hot water and soap, dried with alcohol, and finally mopped with boracic acid solution. Septic cases are prepared with bichlorid solution as for any other septic field. When the prepuce cannot be retracted, the subpreputial cavity, if it can be reached, is either swabbed out with cotton soaked in boric or bichlorid solution, respectively, or injected with like solution—4% boric, 1-2000, 1-4000, 1-6000 bichlorid. A tourniquet of soft rubber or a Nèlaton catheter is wound around the penis at the peno-scrotal junction, held in place by an artery forceps if not tied, and the penis is drawn through a central opening of a sterile towel, or two sterile towels, one on each side of the penis, are pinned together so that nothing is exposed save the penis with its prepuce.

The penis is allowed to rest on a sterile towel, and we are ready for the second step :

Anesthesia.

It is astonishing how little satisfaction one gets from almost all our text books on the subject of local anesthesia for circumcision and yet, only under extraordinary circumstances, as when we have to perform circumcision in combination with other operations requiring general anesthesia and in the extremely frightened young, should any other than direct local anesthesia be employed. The local anesthetic may be applied to the *subpreputial cavity* and therewith to the glans and frenum by cotton tampons soaked in a solution of cocain, eucain, or novocain, given in strength varying from 1%, 3%, 5%, to 10%, or by injecting into the cavity of the same strength of fluid and immediate clamping of the prepuce. The anesthetic may be applied to *the prepuce and the glans directly* by intradermic and deeper infiltration of weak solutions, ranging from 1-200, 1-500, 1-1000, 1-2000, a superb method we owe to Schleich, or by hypodermic injections of stronger solutions, ranging between 1%, 2%, 4%, as high as 10% a randow, dangerous procedure ; or the anesthetic may be applied to the prepuse and the glans *indirectly* by *injecting small quantities of a 1%* solution, stronger than we need it for Schleich infiltrations, into the corpora cavernosa of the penis, depositing about

5 (five) drops on the dorsal, 5 (five) drops on the frenal, 5 (five) drops on each of the two lateral sides of the penis, in close vicinity to the peno-scrotal angle, a method we owe to Oberst of Halle, an exceedingly good method, indeed. However, I prefer the direct infiltration of the part I am to incise, and therefore I proceed with Schleich as follows :

1. If the patient is very sensitive, the parts are covered with glycerin, and the skin over the dorsum of the penis just where the needle is to enter, usually over the corona, is sprayed with ethyl chlorid. If the patient is not sensitive, this step is omitted. In cases of paraphimosis, freezing of the tissues posterior to the glans with ethyl chlorid gives sufficient anesthesia for incising the constricting ring.

2. The fine hypodermic needle is entered into the blanched or unblanched point of the skin over the corona flat, and worked circumferentially around the prepuce for circumcision and in a straight line forward, as far as possible, and laterally, where needed, for incision and forcipressure. If the tissues are inflamed, the healthy tissue surrounding the inflamed area is first infiltrated and then the inflamed tissue itself is infiltrated for incision or excision. Ulcers are undermined : We infiltrate them from the healthy parts and carry the anesthetic under the base of the ulcer. Adhesions are circumscribed. We encircle the base of adhesions with the anesthetic.

3. The maximum dose of cocain, to be used for local anesthesia, must not exceed, as Kocher has well pointed out, one decigramme (1 dg.), i. e., 1½ grains at the utmost. Cocain poisoning and death have been recorded from one grain. This applies also to eucain and novocain, and, while quinin and urea hydrochlorid poisonings have not been reported, it must be apparent that directions of text-book writers for the use of 20 to 30 minims of a 4% solution of cocain, the equivalent of 415 to 1115 grain, or of half a drachm of a 10% solution, the equivalent of 3 grains, or of an indefinite quantity of even a 1% or 2% solution, are to be disregarded. Solutions of cocain as weak as 1-2000, 1-5000, 1-10,000 have an anesthetic effect if properly and slowly infiltrated. A 2 to 1000 solution of cocain, with 6 grains of sodium chlorid and 60 minims of *1/1000 adrenalin*, boiled in flask or bottle, for 3 minutes, gives a weak, properly prepared, aseptic physiological salt solution of cocain and only a fraction of this is needed for proper anesthesia of the prepuce and

glans in the most extensive posthectomy. For infiltration, no stronger solution than 1 to 200 should ever be used.

4. Through the needle of the hypodermic syringe, entered flat within the skin, the fluid is slowly discharged and when the edematous area of the cutis is sufficiently large the needle is withdrawn and re-entered near the periphery of the anesthetic edema and a new edema is produced. The process is repeated, the needle always entering at the periphery of the last edema and producing a new one in the line of the proposed incision, until the chain of needle points marks the line of circumcision. When the *prepuce* can be *retracted*, I infiltrate the skin of the prepuce on the level of the dorsum of the corona in a continuous line around the dorsal, lateral and frenal surfaces perpendicularly to the axis of the penis, for I make a circular and not an oval circumcision of the skin ; then I retract the prepuce and anesthetize the internal preputial membrane, beginning just behind the dorsum of the corona and encircling it at a right angle to the long axis of the penis, i. e., perpendicularly, not along the line of the corona forward toward the frenum. When *the prepuce* can *not* be *retracted*, I infiltrate the skin, circumcise the skin, then infiltrate the internal membrane from the wound forward to the preputial orifice for dorsal incision, and further infiltrate the memberane upon retraction for oval excision. We must anesthetize according to the operation to be performed and not operate according to the anesthesia that may be induced. If the internal membrane *adheres* to the glans, I infiltrate the glans itself at the respective points through and beneath the adhesions. In *paraphimosis*, if freezing is not resorted to or is insufficient, the needle is carried flat into the mucous surface of the incarcerated ring, then into the submucous area and sometimes may have to be carried into the skin overlying the corpora cavernosa for full anesthetic edematization. Then when the constricting ring is incised and the paraphimosis is reduced, the prepuce is anesthetized as for a retractable phimosis.

Injection anesthesia necessitates waiting 15 to 20 minutes before proceeding to circumcise. Quinin and urea infiltrations likewise require from 20 to 30 minutes ; but with cocain infiltrations we may proceed to the third step of our operation without further delays as soon as the edematization of the lines of incision is completed.

Circumcision and Incision.

Most operators make of circumcision a clamp operation, and some, like Brassford, Lewis and Kistler, not only clamp the foreskin and remove the portion anterior to the clamp but also suture the remainder through holes or slots made in the clamp as ports of entry for the suturing needle. The adventages given are that not too much skin is removed, the oval shape is easily retained, the opèration is rapid and bloodless, the coaption is exact. The skin is marked as it covers the glans naturally in a state of rest either on a level with the meatus or midway between the meatus and the corona or on a level with the dorsal sulcus. In whichever of the first two limits the clamp be placed, the operation will of necessity result in only a partial circumcision ; but if we are to do circumcision, I believe we ought to do the complete operation. A partial circumcision may with new disease make a new posthectomy a necessity. The liberating incisions of Remondino, Konig, Roser and Guiteras, the straight dorsal, frenal, lateral, inverted V (Λ) and U (∩) incisions, frequenently properly indicated in infected and ulcerating cases, can be considered only preliminary incisions to circumcision. The oval clamp operation is not only to shape the prepuce but also to spare the frenum. The redundancy and anatomic length of the frenum are not considered. A short and irritable frenum is frequently an impediment to proper copulation. The proper angle of the erect penis cannot be maintained with a too short or a too long frenum, an adherent prepuce, and abnormal penile curvature, and such cases come to us not infrequently complaining of impotence and presenting this particular from of organic impotence. Normally, the erect penis is to rise toward the abdomen, is to efface the pubic angle caused by the suspensory ligament supporting the fixed porsterior part of the penis, is to give the anterior pendulous portion of the penis the direction of the fixed part, is to approach the symphysis in a lightly bent shape with the concavity towards the abdomen in correspondence with the direction and the shape of the normal vaginal canal. We must, therefore, operate on the prepuce so that any defect, deformity, adhesion or sore may come under the eye. In a clampsuture operation, the sutures are placed before the mucosa can be properly attended to, before frenal defects, adhesions, etc., can be remedied. In immediate coaptation, the trimming amputation of the mucosa which is an absolute necessity for a correct circumcision, is sacrificed to the fear that we must not take too much skin and that this can be best avoided by the clamp being placed in front of the glans. In children, of course, it must be borne in mind that the parts are diminutive and that denudation must be avoided by not taking too much skin ; but even in children one does not require a clamp for this precaution. What one requires is an appreciation of the anatomic relations. I have seen circumcisions made on a clamp taking a dangerously excessive amount of skin. In the adult, too, we must not take too much skin, but we must take nearly all of the inelastic mucosa and yet leave a good frenum. This cannot be accomplished with the clamp operation, for any one who has ever performed circumcision must admit that however much skin we may grasp in the clamp only a comparatively small portion of the internal membrane will be included and unless we further incise this inelastic mucous membrane and excise it all the way around the corona to the frenum sufficiently to leave just enough for suture we shall have tension and the best chance for a persistent phimosis. For these reasons, I confine the *clamp operation* entirely to chancroidal or other ulcerative cases of phimosis undergoing slough, gangrene, phagedena, etc., and only to such of these cases as I cannot properly approach with my operation of circumcision, incision, amputation, excision : The infected ulcerated foreskin on the clamp as a base is cut with a cautery knife at white heat to avoid extension of the infection to healthy parts.

In all other cases, except cases of paraphimosis, I circumcise the preputial skin first, and incise skin and mucosa longitudinally afterwards. In making of circumcision of the skin a distinct operative step, I follow Leguen, the masterful successor of my masterful teachers, Guyon and Albarran, at the Necker. The circular incision is really that of Jean Louis Petit, the father of the tourniquet and circular amputations of the extremities. Because the preputial extremity is non-resistant can be no valid reason why we should not operate on it anatomically and on the fixed surgical principles of amputation.

1. The penis is held steady with the left hand. With the knife in the right hand, I circumcise the skin of the prepuce, and that only, beginning on the dorsum over the corona as the prepuce is in its natural position, undisturbed by pulling. Following the chain of needle points made in the induction of local anæsthesia, the knife is carried perpendicularly to the longitudinal axis of the penis from the dorsum over the left side of the prepuce to the frenal surface ; then, from the dorsum over the right side to the frenal surface ; and, finally, with a third little sweep of the knife, the two incisions are connected on the frenal surface into one circumcision. The skin retracts. The subcutaneous cellular tissue can now be confidently avoided being cut or taken into, the subsequent suture, and when we

finally suture the amputated oval mucous membrane, which when amputated properly will naturally be shortest on the dorsum and longest at the frenum, to the circularly cut skin, we shall find that it is not only not necessary but really not desirable to make an oval circumcision of the skin to obtain an oval result, for the attachment of the circularly cut skin to the frenum secures the oblique slant downward and forward naturally and of necessity and thus avoids the redundancy of skin commonly obtained in this region.

2. With two forceps, one on each side, grasping the mucocutaneous fold at the preputial orifice, the internal mucosa with the external skin still attached to it is pulled forward, and, thus made tense, a longitudinal dorsal incision is made with scissors, taking in skin and mucosa and proceeding in the middorsal line from the preputial orifice backward to at last ¼ or at most 1/6 of an inch to the corona. This prepares the way for the oval amputation of the internal preputial membrane from its postcoronary attachment.

3. In cases of paraphimosis, I make a dorsal incision of the seat of constriction in the second furrow behind the corona with a concealed meatotome if the otherwise irreducible constriction can be reached without having to traverse the skin ; if the skin must be traversed, a director is pushed through a fold of the skin of the penis posterior to the constriction into the subcutaneous cellular tissue to the stenosed ring and the constriction is divided with tenotome or scissors upon the director ; the paraphimosis is reduced and the prepuce finally circumcised ; or, as an emergency measure, the unreduced paraphimosis is circumcised by two circular incisions, first, of the overlying mucosa, then, of the underlying skin, and, after this *circoncision d'urgence* of Leguen, completed as ordinary circumcision is completed upon anatomic principles and individual requirements.

Amputation and Excision.

1. If the preputial mucosa is not bound to the glans, we proceed to amputate the mucosa at once : We grasp the internal preputial membrane near its postcoronary attachment with plain dissecting forceps and, with scissors, resect this membrane parallel to the corona, leaving a width of ¼ of an inch at the utmost and not less than 1/6 of an inch, just sufficient for suture. The resection begins at the posterior extremity of the dorsal incision and ends at the frenum on both sides near its apex, making a more or less oval incision.

2. If the preputial mucosa is bound to the glans by adhesions, amputation of the mucosa from its postcoronary attachment must be deferred until the adhesions are severed or excised : Soft and superficaial adhesions are divided with scissors. Firm and hard adhesions are dissected and excised with dissecting forceps and knife or scissors. It must be apparent that the common text-book recommendation of separating adhesions with a probe, oiled or unoiled, sweeping it between the glans and the internal preputial membrane, cannot find application in the deep, firm, hard adhesions following ulcerative processes. Soft, superficial congenital adhesions due to non-separation of epithelial union may be peeled off with sponge, nail, forceps, probe or director if one prefers peeling to clean anatomic section, but peep adhesions cannot be properly dealt with except by anatomic dissection and excision. That these adhesions can be formidable is proved by the case reported by Petit presenting a continuous preurethral channel for the passage of urine due to complete or total adhesion of the internal preputial membrane to the glans.

3. The frenal attachment of the prepuce is severed in such a way as to leave an inverted V (Λ) shaped cut, the apex pointing forward towards the meatus. Davies-Colley insists upon this incision to avoid leaving a redundant frenum. Treves insists that the oval resection of the mucosa following faithfully along the corona is sufficient. For esthetic circumcision and the construction of a liberal, serviceable frenum, this part of the operation becomes a delicate necessity. With the circular resection of the skin and the oval resection of the mucosa, the cuff formation of Nussbaum, revived by Breakstone, is generally superfluous. The parallel incisions of Nussbaum into the mucosa on each side of the frenum are, like the Roser incisions of the mucosa from the mucous membrane angle obliquely across toward the skin to liberate the mucosa in partial posthectomies for better coaptation, liberating incisions for better coaptation of the mucosa with the skin. Unless these incisions are made for the purpose of lengthening a short frenum they need not be considered, and if the frenum extends farther forward toward the meatus than it normally should and thus drags the mucosa too far forward for good coaptation, it is better that we divide this abnormally long frenum, as Rèclus recommends, and thus mobilize the mucosa for backward coaptation than to make the Nussbaum incision. A short frenum, interfering with erection, tearing continually all making coitus painful, is best severed and the severed edges kept from healing together by an-

intervening boric ointment dressing, or, if further lengthening is intended, the short frenum is excised so as to leave a long inverted V (Λ) shaped triangular cut with the apex toward the meatus for coaptation into a now long frenum, or the edges of the frenum, severed transversely, are placed in longitudinal position for longitudinal suture, as Steiner and Hartmann recommend. Supernumerary frena are excised and treated like adhesions.

The mucosa properly severed from its postcoronary attachment, the frenal triangle provided for hemostasis established by ligation or to be established by transfixion sutures taking in the bleeding points, to avoid extravasation into the more or less loose connective tissue between the skin and the mucosa with consequent tension, cutting through of sutures and possible sloughing, we are ready for the fifth step :

Coaptation.

1. The first suture, both for the esthetic result to be achieved and for immediate frenal hemostasis, the frenal artery being the only one of the preputial vessels to call for immediate ligation or transfixion, is best placed at the frenum. The point of skin to be contiguous with the frenum is joined to the apex of the denuded frenal surface if no lengthening of the frenum is intended. Otherwise, if the frenal triangle was made for the purpose of lengthening the frenum, the lateral edges of the frenal triangular mucosa are coapted by transverse sutures and the point of skin in sutured not into the apex but into the newly constructed posterior angle of the frenum; or, the longitudinally placed edges of the transversely severed short frenum are sutured so as to construct a long new frenum and the point of skin is sutured into the lower angle of this newly constructed frenum. The ends of this first suture, primary or secondary to frenal suturing, are left long after tying.

2. The second suture is placed in the dosal center and also left long after tying the skin and the mucosa together.

3. The suture of the two intervening spaces is best accomplished by interrupted sutures, if not more than 6 or 8 needed, the ends of all being left long, if dressing is to be tied to the line of suture, or, by four continuous sutures, two for each side, as follows : We begin at the dorsal suture, tie, and run a continuous suture of skin leaving a long end ; enter another suture from mucosa into skin and tie the

two long ends together, leaving them, and coapting the remaining interspace down to the frenum without tying until after the same sort of suture is applied to the other side. There are thus four double long ends of suture left to receive the subsequent dressing. For septic cases, only the interrupted suture should be used.

4. Before the continuous sutures near the frenum are tied, the tourniquet is removed and the perfection of the hemostasis attained tested. There is perfect hemostasis if the sutures take in only skin and mucous membrane as they should. Belfield passes his sutures through skin, intervening subcutaneous tissue, and mucosa, but I believe this is an anatomical mistake. I prefer to follow Davies-Colley and pass sutures through skin and mucosa only and leave the cellular tissue untouched to be held behind in place by the sutures in front. This cellular tissue contains the bloodvessels which might easily be penetrated if taken in the suture. If there is more than the ordinary oozing naturally to be expected after decompression, the frenal sutures not being tied, there is space for the blood to pass out and the suture may be loosened for hemostasis. When hemostasis is completely established, the frenal ends are tied, the necessary dressing is applied, and there need be no fear of subsequent extravasation, swelling and sloughing.

Dressing.

The dressing is applied dry for aseptic cases, *wet* for septic cases, *oiled* or *salved* for raw surfaces remaining from ulcers, adhesions, etc. The suture line is dusted with iodoform, aristol or airol ; a strip of idoform or plain gauze is placed over the suture line between the double long ends of sutures ; these are tied over the gauze. This dressing is usually sufficient, but in unruly patients a coat of collodion over the dressing will make an occlusion dressing that need not be disturbed for 8 to 10 days, and that will protect the wound perfectly from contamination with urine.

With a sheet of dry gauze or absorbent cotton surrounding the entire penis and the penis held up under the shirt towards the navel, the patient departs for his work, if he must, for his home, if he can take rest for 24 hours.

After-Treatment.

For urinating, the patient removes the loose cotton or gauze from the penis, retracts any dressing that is to be retracted, in septic cases, the occlusion dressing of aseptic cases not requiring retraction, and catches the last drops of urine with a little absorbent cotton.

If the dressing is too tight and causes erections, congestion or edema, it is removed on the first visit of the patient, in 48 hours after application. Otherwise, the dressing is not disturbed for 8 or 10 days, when healing will be firmly established. Meanwhile the patient is able to attend to his work.

For painful erections, aconite will exert a better effect than the large doses of bromid of potash usually prescribed. For the accidents of edema, hemorrhage, extravasation into the cellular sac, infection and sloughing, and the postoperative conditions of redundancy any shortness of the frenum, recurrent phimosis and adhesions, the best treatment has already been indicated in the steps of the operation to be taken : Sutures should coapt, not strangle ; vessels should be secured, clots evacuated ; septic cases should be drained, dressed wet and hot ; the frenum should receive the necessary attention ; complete and not partial posthectomies should be made ; raw surfaces should be kept apart with boric ointment dressing till healed.

Female Posthectomy

The anatomic layout of the clitoris and its hood connected with the labia minora necessitates some modifications in the technic of circumcision of female patients, but the modifications in the steps necessary to overcome atresia, phimosis, adhesions, smegma and concretions of the prepuce of the clitoris are so trifling and so obvious that a detailed description is deemed superfluous. Only the importance of a free clitoris needs to be remembered.—The *Journal of the American Institute of Homeopathy,* February, 1917.

The Homœopathic World, March, 1917, London.

The New England Medical Gazette, March, 1917, Boston.

The Homœopathic Recorder, February, 1917, Lancaster, Pa.

The Homœopathic Envoy, March, 1917, Lancaster, Pa.

The North American Journal of Homœopathy, March, 1917, New York.

The New York State Journal of Medicine, February, 1917, *Brooklyn.*

Long Island Medical Journal, February, 1917, *Brooklyn.*

The Indian Homœopathic Review, January, 1917.

The Medical Times, March, 1917, New York.

The British Homœopathic Journal, March, 1917, London.

New Yourk Medical Journal, March, 1917.

The Journal of the American Institute of Homœopathy. March, 1917 Chicago.

The Calcutta Medical Journal, April, 1917, Calcutta.

Journal of the Royal Society of Art.

Medical World.

National Magazine.

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AN ACCOUNT OF THE PRINCIPAL WORKS OF ATTREYA SCHOOL WITH THEIR CHRONOLOGY.

By Kaviraj Biraja Charan Gupta, Kavibhusana.

(*Continued from p. 450, Nov. 1916.*)

Next we come to the Kashmera Recension (काश्मीरपाठः) of *Charaka.* Mr. Hoernle says—"In the *Madhukosha* the commentary on the *Nedanam* of Madhava, Bijaya Rakshita notices several passages cited by *Madhava* from *Charaka's* compendium where Kashmera Recension differs from the Recension quoted by *Madhava.* The inference is that *Madhava* cites the passages as written by *Charaka* himself, that the Kashmera Recension was not known to him and that, in fact, that Recension was not yet in existence; and so Mr. Hoernle concludes—"Seeing that Kashmera Recension was the work of Kashmera physician *Dridhabala*, it follows that *Dridhabala* is posterior to *Madhava.*" What Mr. Hoernle means to say in the above extract is that the Kashmera Recension and the expressions "काश्मीरपाठः," "काश्मीर पाठे चरकः" "काश्मीराः" mean and include the portion of the

Charaka Samhita as revised by *Dridhabala*.* There is no certainty, however, which portion of the *Charaka Samhita* has been revised by *Dridhabala* and what the original text of *Charaka* was. But it can be said with considerable certainty amcable to reason that the expressions काश्मीराः and चरक पाठे काश्मीराः do not mean the revisions or the interpolations by *Dridhabala* only. It is well-known to the students of the *Ayurvedic* literature that several passages or opinions are often referred to by the commentators to the passages or the readings from the texts of the books obtained from Kasmere or the opinions of the Kashmera physicians. In support of the above view an instance may be appropriately cited. We find in the *Siddhayoga* of *Brinda* there occurs a specific (मणिभद्रमोदकः) *Manibhadra Modaka* by name under the head "purgatives." The same specific again occurs in the "*Chakra Samgraha*" by *Chakrapani Datta* in the treatment of the Piles. *Srikanta Datta* while explaining the text and ascertaining the quantity of molasses (गुड़ः) remarks "काश्मीरास्तु गुड़स्य द्वादशपलानि पठन्ति" *i.e.*, the Kashmerians read or take twelve palas of molasses (गुड़ः). Here the commentator by reference to "काश्मीराः" means the opinion of the Kahmera physicians as to how they ascertain the quantity of molasses. It should be noted in this connection that there is no mention of the "*Manibhadra Modaka*" (मणिभद्रमोदकः) in the existing *Charaka Samhita*. It follows thus that *Dridhabala* did not add it to the *Charaka Samhita* while revising the same and necessarily, "काश्मीराः" has no reference to *Dridhabala*. For the text "माषार्थपैप्पल्यगुरुत्वशैत्यविवर्जमंत्रद्युतं" of *Dridhabala* (*Charaka Samhita*, *Chikitsitasthanam*, Ch XXVI) has been quoted by *Madhava* and *Bijaya* commenting upon the same cites the Kashmera Recension "विवर्जमंत्रद्युतमिति काश्मीराः". Had the Kashmera Recension meant and included the texts interpolated by *Dridhabala*, only in the portion of the *Charaka Samhita* written by *Charaka*, we would not have found the expression "काश्मीर पाठः" in the portion of *Charaka Samhita* admitted and supplemented by *Dridhabala*. It is very common with the commentators to use "तन्त्रान्तरीयाः", "वृद्धाः" (other *Tantras*, old physicians) or some such expressions while citing the opinion of particular school. Very probably the word काश्मीराः is some such word and hence the expression "काश्मीरपाठे चरकः" (*Charaka* in Kashmera Recension) means and includes the different readings of *Charaka Samhita* collected from Kashmere. Probably Bijaya Rakshita refers to those readings only. Now a days we too in the same way refer to the different readings of the manuscripts from various places. It has been proved that the Kashmere Pathas are not the texts of *Charaka Samhita* as recast by *Dridhabala*, hence Mr. Hoernle's conclusion as to the chronoligical position of *Dridhabala* and *Madhava* becomes untenable. It has been shown as well that the Kashmera Recension is nothing but different reading to be found in the manuscripts got from a particular locality or the opinion of a particular school. So Mr. Hoernle's inference as to the anteriority of *Madhava* is out of place. As to the respective chronological position of *Dridhabala* and the compiler of the *Astanga Samgraha* we shall consider the views of Mr. Hoernle when we deal with the latter.

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* It would appear on a comparison of the foot notes in Mr. Hoernle's book bearing on the references to the Kashmera Recension in the commentary by Bijaya Rakshita on the *Nidana* of *Madhava* that according to him काश्मीरपाठः and काश्मीराः mean one and the same thing

Thus to consider the views of Mr. Hoernle we have made much digression. Now let us come to the principal subject of our enquiry. The *Chikitsitasthan* of *Charaka Samhita* is complete in 30 Chapters, of these first 13 Chapters were written by *Charaka* and the last 17 Chapters are the work of *Dridhabala*. There is an index to the 30th Chapter of the *Sutrasthan* of the *Charaka Samhita* and in this index there is written which disease will be dealt with in which of the Chapters of the 30 Chapters of the *Chikitsitasthan*; hence it seems not very difficult to ascertain which of those Chapters were written by *Charaka* and which again by *Dridhabala*. Yes, the task would have been an easy one had there not been the different readings of the index to the 30th Chapters of the *Sutrasthanam*. This difference in the readings of the index has created an anomaly as to which of the diseases in the *Chikitsitasthanam* have been dealt with by *Charaka* and which again have been written by *Dridhabala.*

In the index in question in the Bombay *Nirnaya Sagara* Press Edition of the *Charaka Samhita*, the following is the order of the diseases dealt with in the 30 Chapters of *Chikitsitasthanam* :—

(1) *Rasayana* (2) *Bajikaran* (3) *Jwara* (4) *Raktapitta* (5) *Gulma* (6) *Meha* (7) *Kushthu* (8) *Shosha* (9) *Arsha* (10) *Atisara* (11) *Bisharpa* (12) *Madatyaya* (13) *Dwibraniya* (14) *Unmada* (15) *Apushmara* (16) *Kshata* (17) *Sotha* (18) *Udara* (19) *Grahani* (20) *Pandu* (21) *Hikka Shwasha* (22) *Kasha* (23) *Chhardi* (24) *Trishna* (25) *Visha* (26) *Trimarmiya* (27) *Urushtambha* (28) *Vataryadhi* (29) *Vatarakta* (30) *Yonivyapat.*

The order of the Gangadhar's Edition of the *Charaka Samhita* is as follows :—

(1) *Rasayana* (2) *Bajikarana* (3) *Jwara* (4) *Raktapitta* (5) *Gulma* (6) *Meha* (7) *Kushtha* (8) *Shosha* (9) *Unmada* (10) *Apasmara* (11) *Kshata* (12) *Sotha* (13) *Udara* (14) *Arsha* (15) *Grahani* (16) *Pandu* (17) *Swasha* (18) *Kasha* (19) *Atisara* (20) *Chhardi* (21) *Bisarpa* (22) *Trishna* (23) *Visha* (24) *Madatyaya* (25) *Dwibraniya* (26) *Trimarmiya* (27) *Urusthambha* (28) *Vata Vyadhi* (29) *Vatarakta* (30) *Yonivyapat.*

Though there is difference in opinion as regards the order in the specification of the diseases in the index there can be no gainsaying that the first 13 Chapters of the *Chikitsitasthanam* were revised by *Charaka* and the remaining 17 Chapters were supplemented by *Dridhabala.* The chapters on the treatment of *Arsha, Atisara, Visarpa, Madatyaya, Dwibraniya* being within the first 13 chapters are, according to the *Nirnaya Sagara* Press Edition of the *Charaka Samhita*, written by *Charaka* and being beyond those chapters they, according to Gangadhar's Edition, are written by *Dridhabala.* Then again according to the order of arrangement of the chapters adopted by Gangadhara the chapters on the diseases viz.,—*Unmada*, *Apasmara*, *Kshata*, *Sotha* and *Udara* are written by *Charaka* being within the first 13 chapters and according to that of the *Nirnaya Sagara* Press Edition they being beyond those chapters were written by *Dridhabala*. On a comparison of the two lists it would appear that both the Editions agree as to the authorship of *Charaka* so far as the 8 chapters on the diseases viz.,—from *Rashayana* to *Shosha*; there is as well uniformity of opinion between the same Editions as to the authorship of *Dridhabala* so far as the chapters on the diseases viz.,—from *Trimarmiya* to *Yonivyapat* and the chapters on *Grahani*, *Pandu*, *Swasha*, *Kasha*, *Chhardi*, *Trishna* and *Visa*. Thus dispute lies regarding the authorship of the ten chapters on the diseases, viz. *Arsha*, *Atisara*, *Visarpa*, *Madatyaya*, *Dwibrania*, *Unmad*, *Apasmara*, *Kshata*, *Sotha* and *Udara*, Gangadhara is of opinion that the chapters on *Arsha*, *Atisara*, *Visarpa*, *Madatyaya* and *Dwibraniya* were written by *Dridhabala*, whereas the *Nirnaya Sagara* Press Edition attributes their authorship to *Charaka*. According to Gangadhara the chapters on the diseases viz.—*Unmada*, *Apasmara*, *Kshata*, *Sotha* and *Udara* were written by *Charaka*, whereas according to *Nirnaya Sagar* Press Edition their authorship should be ascribed to *Dridhabala*.

It is to be observed, however, that numerous commentators have respectfully quoted texts from the *Chikitshitasthanam* of the *Charaka Samhita*. We shall examine those texts from *Chikitshitasthanam* of *Charaka* quoted by the ancient commentators and try to ascertain the authorship of those ten chapters of disputed authorship and in doing so we shall chiefly draw our materials from the commentators on the *Nidana* of *Madhava* and *Chakra Samgraha* which are generally read and are well known to all who have some introduction to the *Ayurvedic* literature. It should be observed in this connection that the commentators have quoted texts from *Charaka* by affixing first, third, sixth and seventh case endings to the word *Charaka*. It is admitted also that in the existing *Charaka*

Samhita there are writings of *Charaka* and *Dridhabala*, hence where the commentators purporting to have quoted texts from *Charaka* have used 7th case ending it is impossible to ascertain the authorship of the texts quoted; but this much is certain that they are the texts of the *Charaka Samhita* as distinguished from other treatises such as *Susruta*, *Vagbhata* and others that is to say the use of the 7th case ending affix to the word *Charaka* to mean to refer to the book and not to the writer. So we find that Bijaya Rak-hit though he admits* that the whole of chapter on the *Vatabyadhi* to have been written by *Dridhabala* has used the 7th case ending while quoting texts viz.,—"च:केत्य-साध्यत्व", "तन्न चरके टीना जिह्वा मधुतृप्तिप्रा" &c., from the *Chikitsita-sthan* of the *Charaka Samhita.* Similar is the case with the 6th case ending where the commentators have quoted texts from the *Charaka Samhita* by name affixing the 6th case ending after the word *Charaka* they refer to the book and not to the author *i.e.*, the *Charaka Samhita* as revised by *Charaka* supplemented by *Dridhabala*, for the *Charaka Samhita* is the common name for the compendium of *Agnivesa* revised by *Charaka* and supplemented by *Dridhabala.* If it had any reference to the author, Bijaya Rakshit, admitting that the treatment of the disease *Hikka Swasha* (हिक्का श्वास) was written by *Dridhabala*† would not have quoted the texts from the *Charaka Samhita* with such remarks as "चरकमतेतु क्यपेतं न प्राप्नोति वा हि जन्मूलादसन्ततेति पच्यते" likewise *Siradasa* would not have ascribed the "मूलकाद्यतैलं" mentioned in the treatment of *Vatabyadhi* to *Charaka* by affixing the 6th case ending to the word *Charaka* (चरकस्य). It is admitted on all hands that the treatment of *Vatabyadhi* in the *Charaka Samhita* is written by

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* "गुदेस्थित इति दृढ़बलस्य लक्षणम्", "दृढ़बलेन यद्यपि आत्रेयपक्षात् पूर्वं अन्तरायामबहिरायामौ पठितौ", "यदाह दृढ़बल: ग्रन्थं तत्रितृ सुस्रावं वाकेबले स्रोतसमहितम्" Texts of *Charaka Samhita* quoted by Bijaya Rakshita in his commentary on the *Vatabyadhi* of the *Nidana* of *Madhava.*

† 'यदाह दृढ़बल: कफवातात्मकावेतौ पित्तस्थानसमुद्भवौ" *Vide* Bijaya Rakshit's commentary on the treatment of ***Hicca Kasha*** in the ***Nidana of Madhaba.***

Dridhabala. We cannot multiply the instances of the 6th and 7th case endings which as we have shown above have distinct reference to the book but not to the author. Next let us take the instances of 1st and 3rd case endings. A careful research into and examination of the numerous commentaries on the *Ayurvedic* treatises have led us to believe that where the commentator quoted texts from the *Charaka Samhita* by affixing the 1st and 3rd case endings to the word *Charaka* they knew those texts to be of *Charaka* only. The hints that I have indicated above as to the way of ascertaining the authorship of *Charaka* and *Dridhabala* have been put to the test in numerous cases and they can be accepted as general rules; there are to be found few stray instances* of the exceptions to the rules—these instances may be taken as the blunders of the manuscript writers.

It has been shown above that there lies a dispute as to the authorship of the treatment of ten diseases in the *Chikitsitasthanam* of the *Charaka Samhita.* It is to be observed however that *Sivadasa* and *Bijaya Rakshita* while quoting texts from those ten chapters quote *Charaka* by name with the 1st and 3rd case endings affixed to it. The quotations† from those two commentators will speak for themselves. They lead us to the conclusion that they are written by *Charaka*, and *Dridhabala.*

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* *Srikantha Datta* in his commentary of "*Siddhayoga*" has quoted texts from *Siddhisthan* of the *Charaka Samhita* admittedly written by *Dridhabala* by affixing 1st and 3rd case endings viz.,—"यदुक्तं चरकेण", "यदाह चरकाचार्यः" The rule laid down above is so general that instances noted may be explained away as the blunders of the manscript writers.

† (1) "यदाह चरकः श्विन्नेत्यारभ्य यावदर्शमांसव्यपदेश एव"; (2) "पित्तोल्वणानामित्यनेन ऊर्ध्वगामर्शसांत्रिदोषजत्वं दर्शितञ्चरकेण"; (3) "यदाह स एव अर्शांसि नाम जायन्ते"; (4) तथाच चरकः अदुष्टमद्य पानीयातिपानात्"; (5) यदाह चरकः खदिरं सप्तपर्णञ्च मुस्तमारग्वधं धवम्। कुरण्टक देवदारु दद्यादालेपनं भिषक्"; (6) "प्रधानाधममध्यानां रुक्षाणां व्यक्तिदर्शकः। यथाग्निरेवं सन्धाग्र्यैर्मद्यं प्रकृतिदर्शकम् इति"; (7) यतश्चरकेणोक्तं तदधोनाभेः प्रायोऽभिनिर्वर्त्तमानं जलोदरं स्फुटति"।

had nothing to do with them. Hence the ten chapters must be within the first 13 chapters of the *Chikitsitasthan* of the *Charaka Samhita.*

It remains to ascertain the authorship of the four chapters on the treatment of *Unmada*, *Apasmara*, *Kshata* and *Sotha*, according to the method of arrangement adopted by Gangadhara those four chapters form the 9th, 10th, 11th and 12th chapters respectively of the *Charaka Samhita* hence to him they are written by *Charaka* himself. *Bijaya Rakshita* and *Sivadasa* while writing commentaries upon the treatment of the above four diseases according to the *Nidanam* of *Madhava* and the *Chakrasamgraha* of *Chakrapani Datta* respectively have not quoted texts from the *Chakra Samhita* by affixing the 1st and 3rd case endings to the word *Charaka.* So we cannot have the opinion of those commentators as to the authorship of those four chapters. However, we have shown above by quoting passages from those two commentators that according to them the chapters on the treatment of *Arsha*, *Atishara*, *Visarpa*, *Madatyaya* and *Udara* are written by *Charaka.* It is admitted on all hands again that the first eight chapters are written by *Charaka.* So we see that the 13 chapters are written by *Charaka.* It is admitted as well that *Charaka* did not write more than 13 chapters. Hence it necessarily follows that the four chapters on the treatment of *Unmada*, *Apasmara*, *Kshata* and *Sotha* are written by *Dridhabala* himself. The *Nirnaya Sagara* Press Edition places *Unmada* in the 14th, *Apasmara* in the 15th, *Kshata* in the 16th and *Shotha* in the 17th chapter and this arrangement seems to be proper.

Thus we have explained the index to the *Chikitsitasthan* of *Charaka Samhita* and the arrangement of the chapters therein according to the popular commentators. The question may arise what should be the arrangement in the said index according to the commentators? It may be briefly answered that if 13 chapters on the treatment of *Dwibraniya* in the index given in the *Nirnaya Sagar* Edition be placed in the 18th chapter and the 18th chapter on the treatment *Udara* disease be placed in the 13th chapter. The arrangement in the index would be one approved by the commentators.

The next point to be considered is whether the *Charaka Samhita* up to the first 13 chapters of the *Chikitsitasthana* were written by *Charaka* only or the hand of some other writer can be traced therein. On a consideration of certain texts in the existing *Charaka Samhita* it would be evident that some one might have interpolated or recast the above portion of the *Charaka Samhita*, the compendium of *Agnivesa* as revised by *Charaka*, for they expressly refer to the period in *Ayurvedic* literature when the methods of the treatment of certain diseases according to the *Dhanwantari* School were well known and when the surgical operations were the accepted ways of treatment of those diseasis. They lead us to conclude that they might have possibly been written by some one who was fully convinced of the efficacy of those methods of treatment and was the admirer thereof. Very probably this unknown interpolater is *Dridhabala*. If these texts be not admitted to have been written by some one else, then *Agnivesa* and *Charaka* become posterior to *Dhanwantari* and his diciples which is not the fact, for *Susruta* in the begining of the *Uttaratantra* makes mention * of the *Attreya* School and thereby admits its authority that the *Uttartantra* of the *Susruta Samhita* was written by *Susruta* and not by *Nagarjuna* as Mr. Hoernle supposes. We shall deal with it in its proper place when we come to the treatises of the *Dhanwantari* school.

We have shown above that there are interpolations by some one, probably *Dridhabala*, in the Compendium of *Agnivesa* revised by *Charaka*; similarly we shall show there are interpolations in the portion supplemented by *Dridhabala*. With a view to establish the importance and completeness of his treatise *Ashtanga Hridaya*, *Vagbhata* says that there is no treatment of the eye diseases expect the mention of the disease in the *Charaka Samhita.* It is incomplete in that respect, so the study of the *Charaka Samhita* only would not enlighten one so far as the treatment of the eye diseases according to the *Dhanwantari* School is concerned, but in the existing *Charaka Samhita* we have the method of the treatment of the eye diseases. It irresistably follows then that some one other than *Dridhabala*, for *Dridhabala* is anterior to *Vagbhata*, has to make up for the short-comings in the *Charaka Samhita*, so far as the treatment of the eye diseases is concerned noted by *Vagbhata* who supplemented the portion in question. It should as well be noted that in the *Charaka Samhita* an explanation has been suggested for the incompleteness and moreover it very confidently adds that what is in the *Charaka Samhita* can only be found in other treatises and what is not therein cannot be found any where else. The explanation and the above observations must have been supplemented by somebody else.

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* "षट्सु कायचिकित्सासु येचोक्ता परमर्षिभिः ।"
उपसर्गादयो रोगा ये चाप्यागन्तवः स्मृताः ।
(*Susruta Samhita*, *Uttaratantra*, Chap. I).

From what has been said above it appears that there are interpolations in the portion of the *Charaka Samhita* revised by *Charaka* and in that supplemented by *Dridhabala.* In the face of so many interpolations by different hands it is as much impossible to ascertain the age of the *Rishi Charaka* by fixing the date of the composition of the *Charaka Samhita* and as to ascertain the probable date of the composition of the *Charaka Samhita* by fixing the date of the *Rishi Charaka.* It is strange indeed that some moderners have made futile attempts to ascertain the date of the composition of the *Charaka Samhita* and that of *Rishi Charaka.* In the existing *Charaka Samhita* there are writings of ancient and modern times, so those who have attempted to establish its antiquity are guilty of basing their arguments on the weakest possible internal evidence. We shall now exmine the evidence relied upon by those modern writers and show that they are not so strong as to be safe guides.

(To be continued).

CANCER.*

With Special Consideration of its Relation to the Female Generative Organs.

By Walter Gray Crump, M.D., New York City.

Cancer! How that word strikes terror to the heart of the sufferer, when the physician finds its ravages to be the cause of the phenomena of the patient under examination. How the rendering of his opinion disheartens and sickens, with a force equal to that of the judge's pronouncement of the death sentence, not only the victim, but the family and friends.

Because of the frequency of its occurrence, our senses have become so blunted to the fearful ravages of this malady, that we fail to appreciate its dreadfulness until some one near and dear to us becomes its victim. How few of us appreciate that this scourge has caused more deaths in the civilized world each year, than have occurred in a similar length of time to any of the nations participating in this bloodiest of the world's conflicts. Death on the battlefield is horrible, but how much more terrible and hellish is the slow, torturing agony of death from cancer. In the relation of cancer to the female generative organs, those of us in active practice are almost daily reminded that here, in woman, is the "Verdun" of its onslaughts.

In presenting this paper for your consideration I have, for convenience, arranged to discuss the subject under the following headings: Cancer of the adnexa; Cancer of the uterus; Cancer of the vulva and vagina.

Cancer of the Adnexa. Cancer manifests itself in the uterine adnexa in two distinct ways: As a secondary development to cancer elsewhere in the organism, and as a primary growth in these tissues themselves.

As a secondary manifestation we have two distinct types: Metastatic forms which occur not infrequently in breast cancer, and that most common of all types, pelvic implantation cancer as a secondary result from the development of cancer in some other organ or tissue in the abdomen, especially the stomach, gall bladder, large intestine, etc.

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*Surgical and Gynecological Society, A. I. H., 1916.

How significant is the fact that peritoneal implantation is unquestionably the most frequent and easiest route for the development of secondary cancer. These pelvic implantation cancers owe their origin to the fact that cancer in the upper abdomen, which has extended through to the peritoneum, readily sheds its epithelial elements. These autogenous implantations gravitate to the pelvis, where they find most excellent soil for their development, especially on the ovaries and appendices epiploicæ of the sigmoid. This is unquestionably due to two established facts: That the appendicies epiploicæ, like the omentum, are the policemen of the abdomen, always ready to attack any invading pathological process, and the ovaries, functionating as they do by a monthly rupture of Graafian follicles, furnish a most potent soil for the development of these tissue fragments.

Some of the practical applications of these facts immediately present themselves to us. For instance, when the symptom complex of the patient would lead one to the consideration of upper abdominal malignancy, we readily appreciate how necessary it is in all these cases to interrogate the pelvis for secondary malignant developments. Also when the phenomena presented by the patient leads one to the discovery of a mass of new growth in the pelvis, and especially if associated with these new growths there is increased abdominal fluid, then always should we further direct our investigation to ascertain if we have not present in the patient the classical manifestations of upper abdominal disease, which, although primary, is frequently so much slower in its development that the secondary manifestations in the pelvis come to play the leading role is a cause of the symptomatology in the patient.

To illustrate: I was recently called to see Mrs. L——— in West Hoboken. She had marked abdominal distension with some ascites. On pelvic examination a large mass was discovered in the left lower abdomen, with some fixation of the uterus. On opening the abdomen a general adenocarcinoma of the abdominal cavity was found; the left ovary presented a large papillary carcinomatous cyst, the *cul de sac* and appendices epipoicæ were badly involved in cancer growth and in the upper abdomen was an advanced cancer of the pyloric end of the stomach, with not nly cancer implants in the pelvis, but extensive metastasis to to liver and pancreas.

Unquestionably the cancer in this case began in the stomach and after reaching the peritoneum shed its cancer elements, which, gravitating to the pelvis, readily developed a greater mass of disease in the pelvis and thus caused it to assume the more prominent manifestations.

Primary cancer in the ovaries most frequently develops in the form of papilary carcinomatous degenerations of ovarian cystic growths. It is a significant fact that twenty-eight per cent of all ovarian cysts are malignant at the time of operation and a still greater per cent malignant in their further manifestations; so that we would be safe in saying that one out of three of all ovarian cystic growths are, or will become, malignant.

Realizing this fact, how necessary is it for us as physicians to recommend the early removal of all these ovarian tumors, and how absolutely essential it is that the surgeon shall apply this knowledge to the development of a surgical technic and remove all the ovarian growths, by not only cutting wide of this pathological tissue, so often cancerous, but avoid rough handling of these structures, that ovarian cysts may not be ruptured and their contents distributed to the other abdominal organs, ever ready to encourage autogenous grafting. No ovarian cyst that I have ever seen is large enough to warrant its tapping and the removal of its contents as a preliminary to the removal of the cyst walls themselves; and I have seen them weighing as much as seventy odd pounds. The most shocking manifestations of neglected surgery are the constantly recurring cases of general abdominal cancer and the incurable cancers that have had their origin in ruptured ovarian cysts.

Every year brings a number of these cases to the busy abdominal surgeon. Only two weeks ago I operated a doctor's mother, age 74, and found that her large multilocular ovarian cyst has ruptured since I had previously seen her, and her abdominal organs were bathed in a gummatous fluid, which, should my pathologist find the cyst to contain papillary carcinomatous outgrowths (and there are 80 odd per cent chances that that will be so), will make us not only anxious, but almost certain that this patient will eventually die of secondary cancer development.

Cancer of the Uterus. In cancer of the uterus proper, there are for us as surgeons, two main types to consider; adenocarcinoma of the fundus, and epithelioma of the cervix.

How unfortunate is the fact that the greater per cent of these cases are brought to the surgeon at a time so late in the disease as to make cure by surgical means impossible; and were it not for the fact that fully forty per cent of women dying from epithelioma of the cervix show no evidences of cancer growth remote from the pelvis, there would be little to be gained by any attempt at treatment of these cases by surgical methods. But because of this fact some seemingly gratifying results are being obtained by the heat coagulation method, perfected by Percy, and the combined surgical, radium, and Roentgen treatment. It would take us too far afield to discuss all these, so I will confine my remarks to the further consideration of the surgical treatment of these cases.

In passing, however, I do want to emphasize the fact that hemorrhage, pain, and odor of the discharges in these advanced cases are unquestionably modified by the application of radium and the deep, penetrating, filtered Roentgen rays.

At the present time there is no question but that the best known treatment of cancer is early and wide excision by cautery or knife of the cancer-bearing tissue; so that upon us as surgeons, until a better method of treatment is developed, must devolve the brunt of the combat against this malady. In carrying out the surgical treatment of cancer of the uterus, unfortunately the close proximity of the uterus to the bladder and rectum often prevents the carrying out to the full degree of the standardized surgical methods for the removal of cancer in other parts of the organism.

The two most important factors, namely, autogenous grafting and sepsis, which so strongly militate against successful results, are here more than elsewhere prominent factors to be reckoned with.

In the development of the technic of abdominal hysterectomies for adenocarcinoma of the fundus, our results have been very materially improved by the following procedures.

When the abdominal route is decided upon, before opening the abdomen, the cervix is tightly closed over a plain gauze iodoform or iodin interuterine pack, by several mattress sutures through the cervix, thus completely closing off the uterine cavity and preventing the distribution of any autogenous grafts by their being squeezed out of the cervix during the subsequent operation. The vaginal vault is then thoroughly sterilized by the application of iodin and carbolic, equal parts, counteracted by alcohol, or the application of Harrington's solution.

All possibly contaminated gloves, gowns, and instruments are then laid aside and the abdominal hysterectomy performed as radically as the pathological manifestations of the disease warrant. Gentleness in surgical technic, here especially, should be developed to the highest degree commensurate with a rapid technic, for not only does rough handling tend to squeeze out the soft cancer material into the operative area, but all too often results in tearing, or morcellation of the tissues to be removed, thus favoring autogenous grafting and the thwarting of the good results to be derived from uncontaminated block dissection.

In epithelioma of the cervix, besides autogenous grafting, the other great factor, secondary infection of the cervix, must be thoroughly appreciated and so dealt with as to prevent, as far as possible, the contamination of the operative area. This secondary infection in cervical cancer is usually streptococcic, as demonstrated by Rosenow, and must be dealt with primarily before any cutting operation is begun. In our experience this is best brought about by the thorough destruction of the infected cancer area, by the actual cautery, in the same preliminary manner as in closure of the cervix for adenocarcinoma.

If the epithelioma has extended to the vaginal vault, and abdominal hysterectomy is the method of operation decided upon, the extirpation of the uterus with the involved portion of the vagina from the lower healthy vaginal segment must be done between clamps and by the cautery knife.

If the cancer is so extensive as to contraindicate radical surgical interference, then the Percy-cooking method is unquestionably, at the present state of our knowledge, the best method of procedure, and while it is too new to have established the permanency of its cures beyond question, it is a significant fact that in many of the advanced cases so treated and later subjected to hysterectomies, after a carefully applied Percy-cooking procedure, the uterus has been found to be absolutely free from malignancy.

It is unquestionably an excellent rule of procedure to curette all women who have a bloody flow after the menopause, and it is permissible to remove a pathological specimen from the suspicious cervix. But I would thoroughly endorse the views of Bloodgood and others by discouraging these procedures, unless they are to be followed immediatly by frozen section and if found to be malignant, by thorough eradication; and in all these cases, gowns, gloves, and instruments must be changed and the operative field resterilized to prevent autogenous grafting. Dangers of malignant degeneration in fibroids of the uterus are variously estimated at from four to six per cent, so that the early removal of these growths, especially the small submucous variety, should be encouraged as a prophylactic measure against adenocarcinoma of the fundus of the uterus.

Cancer of the Vulva and Vagina. In cancer of the vulva, if not too far advanced, or if the patient is old, so that the lymphatics are less active most gratifying results may be obtained by removal of the diseased portion of the vulva, wide of its area of involvement, and the removal of the first outlying lymphatics especially if enlarged, all in one block with the encompassing fat.

If this work is done with the cautery knife, much better results are obtained. One point in the technic of using the cautery knife is to always cut the skin from within outwards, as this very materially facilitates healing, owing to the fact that a greatly decreased amount of skin is thus brought into contact with the cauterizing surface.

Did time permit, there is much more we would like to discuss regarding cancer of the female generative tract, but if some of the points brought out by this paper and its discussion may assist some of you in the cure, or the alleviation of the sufferings of some victim of this "anarchy of cells" this discussion may have accomplished its purpose.

Summary. Let us emphasize the fact that early cancer is a local disease due to cancer cells and that these cells possess the possibility of unlimited cell division; that it disseminates itself largely through the lymphatics that drain the affected areas; that it also spreads by direct grafting or tissue contact, and that it is often dissemminated by ill-advised manipulation of cancer growths, or poorly carried out surgical technic, by soiling of the wound, instruments, or hands of the operator, with its cellular elements which readily become engrafted into wounds, and upon unprotected areas in body cavities.

Cancer on reaching the peritoneum often sheds its cellular elements, which readily establish new foci of growths at points to which they gravitate.

In the treatment of cancer, let us ever bear in mind Von Aeisman's statement that the spontaneous cure of cancer belongs to the realm of medical supersitition.

As surgeons let us realize that it is our duty, until better methods of curing cancer are established, to combat this melady with cautery and scalpel.

Let us bring to each other at these meetings again and again, any special points for its better treatment, which we may have individually perfected, and let us emphasize those points, which we glean from the clinics of the masters, that surgical judgment may be better tempered and surgical procedures carried out with more perfected technic.—The *Journal of the Amarican Institute of Homeopathy,* March, 1917.

REVIEW.

Jottings—for March 1917, published by Messrs. Boericke and Tafel, has been received by us and we hail it after a long time, since the last publication was in October, 1916.

The publishers hope that after the War "there will be renaissance of Homœopathy, as there was after the Napoleonic wars and will be after this one—a return to sanity." There may be renaissance of Homœopathy but we have hardly any hope for a return to sanity. Sanity can only follow religion, but the religion of the so-called advanced or civilized men of the present day is money and gain.

True indeed that homœopathic remedies cover hate, jeaslousy, revenge, suicide &c., but such remedies will be impotent before a national calamity. A nation, in order that it may be without jealousy, hate, envy, &c., must be saturated with the religion of humanity and the religion of humanity can only follow the religion of Buddha and Christ. But woe to us, we are fast abandoning all religions and making ourselves *scientific* which means nothing but digging of our own graves. If we compare soberly the conditions of men of a few centuries back with those of the present day we will find, without doubt, that they were greatly happier than ourselves. Steam and electricity have enhanced the happiness of a few only, as money is being hoarded upon a few heads and the rest are being reduced to poverty. There is no distribution of wealth and the result of this inequality of potentiality is jealousy, revenge, hate and hence war. Man can be happy without science but he is miserable without religion. To a man of the street Newton's laws of Gravitation, Gallileo's laws of falling bodies and all other modern discoveries of science are nothing and he will not be a bit worse for them so long as the food materials are cheaper and living less dearer. Aggrandisement is a malady which is inherent in human being and this disease can only be removed by extensive religious study.

These Jottings published occasionally by Messrs. Boericke and Tafel are very interesting. They bring us nearer to the most recent authors and their works. They give us the latest informations about medicine, vials, cork, &c. In this March number under the heading "The Human Side" we have the following which explains its usefulness—"We try to dispel this erroneous idea (*i.e.*, large house loses intimate acquaintance with its customers) by visiting you in this little publication, Jottings, when we we can talk a little shop and get better acquaintance" We hail this book with joy and pleasure.

EDITOR'S NOTES.

Soap as a Dressing for Wounds.

At a recent meeting for the Paris Sociètè de Chirurgie (*Journ. de méd. et de chir. prat.*, December 10th, 1916) a communication was presented on behalf of Médecin aide major Ratynski on the use of white Marseilles soap [practically the same as white Castile soap] as a dressing for large anfractuous wounds caused by shells. His attention was first called to its advantages by observation of its effects in extensive burns. No dressing, he says, so quickly sooths pain and brings about sound and speedy healing. The surgeon, after disinfecting his hands, dissolves in tepid water, distilled or simply boiled, a few pieces of the soap. For lavages and irrigations a solution of 1 in 40 should be used; for the impregnation of compresses one of 20 per cent. The blood-stained surfaces should first be washed with pledgets of sterilized gauze steeped in this solution; they are applied without roughness to irregularities of surface and granulations. The wound, having been well cleansed in its whole extent and all its anfractuosities, is freely irrigated with soapy water; then a sort of embalming with soap is carried out. For this purpose several compresses of sixteen to twenty layers of gauze, each impregnated with the same solution, are rubbed vigorously against a piece of soap till they are saturated. The compresses are then rolled and pressed between the palms of the hands till an abundant light froth is produced in the interstices of the gauze; in this way a spongy tissue is obtained, consisting of innumerable tiny soap bubbles, which give the dressing a porosity similar to that of a sponge. This is spread over the surface of the wound and lightly pressed, but the dressing should never be less than I cm. in thickness. A thickish layer of cotton-wool, with a tarlatan bandage, complete the dressing, which should be renewed every two or three days. From its first application the author always observed a notable diminution or even immediate cessation of pain. At the subsequent dressings it is seen that the soapy musin does not stick to the wound or the surrounding parts; it comes away without the slightest oozing of blood. Owing to the pososity of the dressing it seems to pump up the secretions as they are formed on the surface of the wound; it is thus an excellent capillary drain. Ratynski has observed that the dressing is impregnated with pus, even in its most superficial layers, while there is scarcely any on the surface or dead spaces of the wound. The soap solutions appear to act by inducing the formation of a viscous ropy liquid which is all the more abundant as the wound secretes a large amount of pus. The soapy irrigations must therefore be continued as long as the viscous liquid, which seems to be due to the contact of the pus with the soap solution, persists. Under the use of the dressing wounds heal with remarkable rapidity; the red oedematous surfaces soon take on a healthy aspect. The granulations and the border of cicatrization acquire a great vitality from the beginning of the treatment. Ratynski and Bergalonne under whom he worked followed to the end of the treatment a number of extensive wounds involving all the soft parts down to the periosteum, amputation stumps, injuries of the hand by grenade explosions (which are so peculiarly painful), and constantly observed the same simple, rapid, painless course with favourable cicatrization, without retraction or induration.—The *British Medical Journal*, February 17, 1917.

Factitious Elephantiasis.

At a recent meeting of the Académie de Médecine of Paris Professor Meriel of Toulouse called attention to what appears to be a new factitious condition, induced for the purpose of avoiding military service. Among the wounded who came before a military board of which he was a member he saw a number of cases of elephantiasis of the limbs, predominating at the extremity, which followed, a slight injury of warfare, such as wounding by a small fragment of shell or a burn of the second degree. The enormous œdematous infiltration, much out of proportion to the gravity of the injury, excited surprise. When a series of such cases came before him he began to investigate them. He found that the œdema was induced by constriction of the limb for several days with a bandage. In some cases a layer of cotton-wool was first interposed so as to prevent any marks of the bandage. Even when no trace of constriction could be found the appearance was characteristic; the œdema was sharply demarcated near the root of the limb by an elevated margin. This is never present in œdema due to disease. The proposal to apply a plaster apparatus or its application often led to avowal of the cause. If it did not, the rapid disappearance of the œdema under the apparatus betrayed its origin. When the œdema was recent it was entirely curable, but when it had been maintained for a long time trophic lesions which did not disappear, or took a long time in doing so, were the result. The œdema affected the hand or foot and extended up the forearm or leg. It was of variable consistence, sometimes hard, but more oten pitting on pressure. The skin of the affected part was glossy, thinned, cold, sometimes bluish, and at other times white. Whatever the upper limit the œdema terminated by a well-marked ridge above which the tissues were quite sound. Movements of the figures were much diminished, and the fingers themselves were enlarged and separated from one another by the enormous lymphatic infiltration. The latter produced in the long run trophic lesions. Their existence was shown by radiography, which revealed decalcification of the bones of the hand and foot which was exactly the same as in a recent work on nerve lesions Madame A. Benisty has figured in a case of wound of the median nerve. In both cases the decalcification predominated in phalanges and the head of the metacarpal bones. It is important to note that the œdema is not due to the neuritis, but the neuritis to the œdema. The neuritis does not recede as quickly as the œdema, but outlasts it for a greater or lesser period producing a disability desired by the subject. The diagnosis can be made by isolating and watching the patient so as to prevent him from constricting the limb or by enveloping the latter in plaster-of-Paris, which in the case of the lower limb should reach up to the pelvis and in the upper limb to the chest.—The *Lancet*, March 17, 1917.

Gleanings from Contemporary Literature.

THE INFLUENCE EXERTED BY THE MILITARY EXPERIENCE OF JOHN HUNTER ON HIMSELF AND THE MILITARY SURGEON OF TO-DAY.

BY SURGEON-GENERAL SIR G. H. MAKINS, K.C.M.G., C.B.

This day one hundred and eighty nine years ago witnessed the birth of John Hunter. Since the year 1814 it has been customary for a member of the Council of this College to deliver at stated intervals an address recalling the memory of that illustrious man.

The speakers on these occasions have in turns devoted the short space of time at their disposal to either a philosophical disquisition, an attempt to form an estimate of the influence exerted by Hunter on the surgical thought of his time, or to dwell upon some portion of the writings he has left us.

My own powers are unequal to the first task, while my knowledge of the state of surgery as Hunter found it is too limited to allow me to essay the second. I therefore propose to deal briefly with his work as a military surgeon, and to try and show what influence this may have had on his successors and upon himself, and how far the views which he held and taught deviate from those which guide the military surgeon of to day. I think the divergence is not a very wide one, for although some of the most modern surgical practice has been spoken of as a *Revolution*, yet the general tendency has rather been in the direction of a *Reaction*. I believe that this reactionary character has been as striking in the surgery practised during the present war as it has been in the military methods employed. I may instance the return to the direct transfusion of blood, the performance of excision of joints in the early stage of acute arthritis, the extensive operations for head injuries, and the character of the methods of wound treatment advocated by some. Even in the case of the chief triumph of recent military surgery—operations for injury of the hollow abdominal viscera—the advance has depended rather on the favourable conditions furnished by the nature of the warfare than on any change in surgical principles.

Of John Hunter's actual life and doings in the field we know little. In the year 1760 he went as surgeon on the staff to Belleisle and Portugal, his term of active service ammounting to two years, while in 1790 he was appointed inspector general of hospitals and surgeon general of the army.

It is perhaps not astonishing to find that not a small share of the meagure correspondence at our disposal is devoted to matters regarding promotion, pay, the character of his seniors, and the social qualities of his colleagues. The world and military life have no doubt altered but little in these respects.

With the exception of his own writings nothing remains of the surgical history of the wars in which he took part. This is to be explained by the fact that the wounded men were transferred on board ship as quickly as possible and sent to England. Hence Hunter, as is the case with his successors is of to-day, was afforded but small opportunity of following out the complete history of the majority of the patients who may have come under his care. His own brief mention of his work is characteristic enough ; he says in one of his letters :

> Thank God I have succeeded in everything I have attempted, but my practice in gunshot wounds has been in a great measure different from all other, so that I have had the eyes of all the surgeons upon me, both on account of my supposed knowledge and method of treatment.

How far Hunter's immediate colleagues agreed with his opinions and practice it is impossible to tell, but that his influence at a later date was great is evident from the comments of the next great military authority blonging to our own College. Mr. Guthrie says :

> Hunter served for a few weeks in 1761 at the siege of Belleisle, and it is much to be regretted that his opportunities were not sufficiently numerous to enable him to draw such inferences from them as would have left but little to desire. The greater part of what he did leave was from this cause found not to accord with the observations made by his successors, while the prestige attached to his name was so great, as much to impede their progress on many essential points.

An examination of Guthrie's writings does not, however, appear to afford much support to this statement, except in so far as Hunter's disinclination to perform either primary or intermediate amputations is concerned. We shall perhaps do better, therefore, to shortly examine for ourselves the material which Hunter left behind him, and judge how far him opinions and teaching differ from those of to-day. Woile, wowever, confining ourselves for the most part to the two lectures especially devoted to the treatment of gunshot wounds. we must bear in mind that Hunter states that his "extensive opportunities of attending to gunshot wounds" drew his attention to the subject of "inflammation in general" and enabled him to make observations which formed the basis for his *Treatise on the Blood and Inflammation.*

The two lectures on the treatment of gunshot wounds differ considerably in character from the series devoted to general surgery. They are more simple and direct, less overlaid by theory, and consist for the most part of clinical observations and practical instructions. Perusal of them furnishes some support to Guthrie's in that the illustration of some of the statements made in, found in descriptions of cases met with at a later date in civil practice. An equally satisfactory explanation of this occurrence is, however, offered by the fact that for these lectures, as in all Hunter's writings the material on which they are based was collected many years before the time at which it was utilized for publication.

In the second lecture, devoted to gunshot injuries of the special regions of the body, little is included which is not equally applicable to the subject to-day. In dealing with the subject of injuries to the head Hunter belonged to the active school—any injury appeared sufficient excuse for trepanning the skull. He dwells on the necessity of raising a sufficiently extensive flap to allow of proper exploration of the injury to the skull, and speaks of the propriety of incising the dura mater in some instances. With regard to the latter procedure, however, he says: "Whenever I have seen the dura mater opened, the brain has worked through the opening, and the patients have died"; hence he recommends caution.

The favourable prognosis attendant upon wounds of the chest is recognized, also the importance of collapse of the wounded lung in restraining primary haemorrhage, and the tendency of the blood effused into the pleural cavity to clot. Hunter made a number of experiments on the production of pneumothorax, etc., on dogs, and recommends "the operation for the empyaema" in cause of haemothorax. It does not appear, however, whether he ever performed this operation.

In the section on injuries to the abdomen the expectant method of treatment is imposed, and this perhaps especially because Hunter was familiar with the favourable course which followed the formation of a secondary faecal abscess and fistula when the colon had been injured. In the matter of diagnosis no great advance has been made since his time, except that dependent on the use of the x rays in localizing the seat of foreign bodies. The value of localized pain and tenderness as a diagnostic aid is dwelt upon, also the various haemorrhages as signs indicative of injury to special viscera. Again, it is interesting to notice that he dwells upon the absence of any certain sign denoting injury to the spleen, also the fact that either the spleen or spleen and liver may be wounded without any obvious adverse result. The often rediscovered fact that there is little tendency for the contents to escape from a wound of the small intestine was also impressed by Hunter. In view of the modern treatment of septic peritonitis it is instructive to note that the suggestion is made of placing the patient in a tepid bath in order to supply fluid to the general constitution. Directions for treatment consist, however, mainly of instructions how to deal with the secondary consequences of injuries to the abdominal viscera; as to primary lesions he says, "I should suppose the very best practice would be to be quiet and do nothing, except bleeding, which in cases of wounded intestine is seldom necessary."

Conservatism is impressed in the matter of primary removal of bone fragments in gunshot fractures, and the too early interference with the sequestra. Hunter, in fact, takes the same line in dealing with these as he lays down in the case of retained missiles. "In general there can be no better way of coming to a part or extraneous body than by waiting for the formation of an abscess there."

The one point on which Hunter's immediate successors appear to differ most freely from him is as to the line to be followed when an amputation has to be considered: he says, "I have already observed that few can support the consequences of the loss of a lower extremity when in full health and vigour"; hence he avoided primary amputation whenever possible, condemned operations of an intermediate nature, and preferred those of the secondary class.

We may now pass on to the question of the treatment of gunshot wounds in general, dealt with in the first lecture and throughout the whole *Treatise on the Blood and Inflammation.*

WOUND TREATMENT.

Hunter's methods of treatment were guided by the views held by him on the pathology of the healing of wounds, and these methods were limited in consequence of his ignorance of the part played by infection as a cause of inflammation. Hence he is not concerned to differentiate between the process of repair and that of inflammation.

He says: "The injury done has in all cases a tendency to produce both the disposition and the means of cure. The stimulus of imperfection taking place immediately calls forth the action of restoration"; yet "injuries often excite more action than is required." Then inflammation is excessive, and this "may arise from a vast variety of causes with which we are at present unacquainted; nay, which we do not perhaps even suspect."

While he regarded suppuration as an unavoidable consequence of many wounds, yet he says, "suppuration may be considered a resolution, but it is the mode of resolution we commonly wish to avoid." Hence his attempts to diminish the degree of general reaction by blood-letting, and locally to effect an immediate closure of the wound. "In parts which have been divided and exposed the inflammation is in great measure prevented by bringing them together," and when this cannot be done, "Nature attempts to prevent inflammation by covering the wound with blood and forming an eschar." Thus a power of resolution is shown "even in cases where the parts have been exposed."

It is of interest in this relation to recall that he combats the opinion promulgated by Ambroise Paré and held long after, that exposure to the air was in itself a cause of suppuration. "Exposure to air certainly has not the least effect on parts exposed, for a stimulus would arise from a wound even were the part contained in a vacuum." Air takes no part in the formation of an abscess, cellular emphysema is not attended by suppuration, the air itself in a pneumothorax is not a source of danger, nor is air necessary for the development of a gonorrhoea.

In describing the special characteriestics of gunshot wounds, contusion is the feature upon which he lays most stress. He observes that the degree and extent of the contusion varies inversely with the velocity retained by the missile. Thus, the greater the velocity retained by the ball the cleaner it wounds the parts, yet they slough; if the velocity is low the mischief is less and the ball more easily deflected. If the velocity be high, blood vessels are divided instead of being contused, if it be very low they are torn.

The contusion of the tissues and the resulting slough prevent healing by the "first intention" "from which circumstance most of them *must* be allowed to suppurate." Hunter observed that the tissue devitalized by contusion temporarily protected that lying beneath. and hence the advent of inflammation (infection) was retarded, and observation which still retains its force in the case of more modern projectiles. Hunter deprecates the practice handed down from Ambroise Paré and Wiseman of routine enlargement of gunshot wounds, and ascribes its origin to anxiety on the part of the surgeon to remove a foreign body. He then points out the difficulty often accompanying the attempt to extract foreign bodies, the fact that experience had shown that these might be left without evil consequences, and concludes that the custom of opening up wounds had been continued in ignorance of its primary object. He does not appear to have realized that the practice afforded an advantage, not then properly appreciated, of supplying drainage to an infected area.

Still the rule "that it should not be opened up because it is a gunshot wound, but because there is something necessary to be done which cannot be executed unless the wound is enlarged" is sound enough, as also the statement, "this is common surgery and should be military surgery respecting gunshot wounds," and is certainly to be preferred to that of Baron Percy, enunciated so late as 1792, "The first indication is to change the nature of the wound as nearly as possible into an incised one."

Hunter, however, improperly undervalues the argument that enlargement of the wound takes off the tension arising from the inflammation, because he considered inflammation a necessary consequence of gunshot wounds, and "any increase in the size of the wound was to be considered as an extension of the first mischief, and must be supposed to produce an increase of the effects arising from that mischief."

He then proceeds to enumerate a number of conditions which call for enlargement of the wound which obviously hold good to-day; but "if none of these circumstances has happened I think we should be very quiet."

Nevertheless he recognized the danger of a contour wound, and recommended an incision over the centre, or the laying open of the entire track, to avoid the danger of abscess formation and the occurrence of extensive suppuration—a danger not always appreciated as it should be in dealing with contour wounds of the head, chest, and abdomen even to-day.

LOCAL TREATMENT OF THE WOUND.

The injury done has in all cases a tendency to produce both the disposition and the means of cure. The stimulus of imperfection taking place immediately calls forth the action of restoration.

The first and great requisite for the restoration of wounded parts is rest, as it allows that action which is necessary for repair to go on without interruption.

In these two axioms we find the theory upon which Hunter's treatment of wounds was based. The dominating factor in the healing of the wound he held to be the vital process or action of the body, a principle dwelt upon in equal measure by his great successor Lister, and one to which perhaps too little attention is given to-day by the originators and advocates of various local methods of wound treatment.

He drew little distinction between the process of repair and that of inflammation, regarding both as the consequences of an "operation" in which the blood vessels took the major share, since in the state of knowledge then existing he was ignorant of the important part taken by increased activity of the fixed tissue elements in addition. Again, his ignorance of the common dependence of inflammation on infection hampered him in devising any local form of application to the wound. Hence we find him mainly occupied with discussing the relative merits of a cold or hot water dressing, and the advantages to be obtained by the use of the poultice which required to be less frequently reapplied and could be removed more easily and with less pain to the patient.

Regarding the healing of a wound as a natural "vital operation," Hunter saw no greater mystery in this process than in the growth and development of the infant to the man. So to-day in apportioning its relative value to any special form of wound treatment, we must bear in mind that it is difficult—aye, impossible—to prevent the healing of a wound, much as the process may be interrupted or destorted by extraneous causes.

During the past two years the local treatment of gunshot wounds has given rise to as lively and ardent discussion as that accompanying the introduction of the antiseptic principle by Lister during the earlier part of the last half-century. It appears as if the steady development of the "aseptic principle" and its obvious success in civil practice had lulled the modern surgeon into a happy dream, from which he was suddenly awakened to the terrible spectacle of wounds infected in a proportion and to a degree to him almost incredible.

As a ship which passeth over the waves of the water, which when it is gone the trace thereof cannot be found, neither the pathway of the keel in the waves.

So, indeed, the experience of the pre-antiseptic surgeon seemed to have vanished and left no trace in the minds of men. This is perhaps the less remarkable in that the simple wounds inflicted by the bullet of small calibre in recent wars, had proved themselves of little consequence in affording either a ready pathway for the entrance of infection or a fertile ground for its extension.

The antiseptic measures suited to meet the limited demands attendant on the practice of aseptic surgery, and in which trust was at first reposed, proved impotent when applied to the treatment of the severe and grossly infected wounds produced by the altered forms of missile employed in the present warfare.

This disappointing experience was followed by a brief acute reaction in the direction of attempting an immediate and complete primary sterilization of the wound by the application of powerful antiseptic media such as liquefied carbolic acid and strong solutions of mercurial salts.

It appears strange that attempts at complete primary sterilization of the wounds should have found so much advocacy. No surgeon has ever succeeded in procuring immediate sterilization of extensive infected areas of tissue, and the striking statement made by Lister on this subject seemed to have been completely forgotten :

If, for example, a pair of forceps is handed to the operator with the intervals between the teeth occupied by dry septic pus, and a portion of this dirt becomes deatched and left in the wound, the evil cannot be corrected by any antiseptic wash that is now at our disposal or that the world is ever likely to see.

This being Lister's view regarding the ill effects liable to follow the datachment of particles of infective matter from the teeth of a forceps, we may readily assume what his opinion would have been as to the feasibility of complete primary sterilization of gross infections dependent on the passage or impaction of fragments of shell and dirty clothing.

The complete failure of attempts at effective primary chemical sterilization led to increased resort to mechanical cleaning of the wound by removal of devitalized and infected tissue by the knife and scissors, and to the employment of counter incisions for drainage, both to prevent extension of the infection and to effect a cure. These procedures remain measures of primary importance whatever subsequent method of treatment may be adopted.

Bacteriological investigation of gunshot wounds during the process of healing has shown that. whatever method of treatment may be adopted, a certain primary sequence of bacterial growth and development is maintained.

Examination of "smear" preparations taken during the first twelve hours reveals the presence of no organisms although cultures prove positive. This incubation stage is followed by the appearance first of micrococci and a highly varied flora of other organisms. These latter, in a properly drained wound, tend to die out rapidly, and in the course of five or six days micrococci alone may persist. This is the crucial period for the completion of sterilization, and success depends on two factors: (*a*) The vitality of the natural process; and (*b*) the efficience of the method of treatment adopted.

As to the first factor, in a certain proportion of instances the vital powers will suffice, but in a considerable number either the primary reaction is deficient, the infection too gross to be efficiently dealt with, or the infection regains ascendancy when the initial reaction commences to fail in power.

Determination of the degree of activity and efficiency of the vital powers in any given case is impracticable, hence some general plan of treatment must be adopted for all. Opinion has been to some extent divided as to the most desirable method, and the chief differences have arisen in connexion with the antiseptic system as laid down by Lister and the physiological or phylacagogic system of Wright.

The question obviously resolves itself into that of the secondary sterilization of wounds; in the one method an attempt is made to supplement the natural vital powers from without by the employment of chemical media to inhibit or destroy bacterial growth in the wound; in the second an attempt is made to modify and strengthen the vital powers by the local application of a simple physical process.

In proceeding to a consideration of the comparative value of these two methods from the point of view of the surgeon it is well first to inquire what is to be hoped for by the use of chemical antiseptic media. Lister proved beyond any possibility of doubt the absolute efficiency of such media as prophylactic or preventive agents, yet both his teaching and writings indicate that he viewed the question of dealing with an established infection from an entirely different standpoint. Of this no better illustration can be found than in the sharp distinction which he drew between "bactericidal" and "inhibitory" media and the way in which he employed them respectively.

We may first ask, Is it possible by chemical means to effect the sterilization of tissue lying beneath the surface of the wound?

It has not been proved that any chemical antiseptic can penetrate the tissues in sufficient quantity or to a sufficient depth to exercise bactericidal powers, unless it is at the same time sufficiently powerful to destroy the tissues themselves. As in other methods, the deeper tissues must depend upon the vital process for sterilization, or, as Lister terms it, the co-operation of the "natural antiseptic"—that is, the constituent parts of the blood.

Before leaving this part of the question, we may also ask whether a complete clearance of organisms from the tissues deep to the surface of the wound is a necessary preliminary to closure of the cavity. This question may be answered in the negative. Evidence is offered by the common observation that many wounds, the surfaces of which are free of organisms, may be safely and definitely closed if the surface be not disturbed or injured in the course of the operation, while others in which disturbance of the surface is necessary for the completion of the operation often flare up with a fresh infection. Moreover, experience of the safety with which a serous cavity such as the peritoneal may be closed in the evident presence of a definite degree of infection also supports this view; again, a less satisfactory observation, the long period during which the organisms which have given rise to an attack of osteomyelitis or enteric fever may remain latent is familiar enough. A certain number of organisms may no doubt be safely left to their fate and for the tissues to deal with.

The virtues of chemical antiseptics are restricted to the power to render sterile the wound surfaces and the cavity included by them. If this sterilization be effected the patient is protected from the dangers of a renewed direct extension of the infection and from the risk of absorption of toxins formed by the bacteria which may collect under pressure in the recesses of the wound cavity. Further, the dangers and ill effects of prolonged suppuration may be avoided.

To effect this purpose Lister's essentials of a thoroughly trustworthy unirritating antiseptic, so stored up that it cannot be dissipated to a dangerous degree before the dressing is changed, must be fulfilled. It is of interest to recall that Lister in 1870 made a suggestion for the primary treatment of gunshot wounds, consisting in the provision of an abundant supply of external dressing soaked in an oily solution of carbolic acid, and again, during the Boer war, suggested the use of a powder of the double cyanide of mercury and zinc as an antiseptic reservoir; but neither of these methods were largely employed or successful in application.

The phylacagogic or physiological method of Wright seeks to attain the same objects as the antiseptic method by the local application of a physical process to regulate, modify, and alternately augment the strength of the various factors involved in the normal vital reaction. It seeks:

I. To maintain the patency of the opened up lymphatic vessels and spaces which normally undergo closure in the same manner as wounded blood vessels, and to encourage an increased flow of lymph from the wound surface with the following objects:

(*a*) To effect a natural lavage of the tissues.

(*b*) To maintain an outward current in the flow, and thus oppose the entrance of microbes into the tissues.

(*c*) To utilize the bactericidal properties of the fluid.

(*d*) To remove exhausted lymph from the tissues in place of leaving it to return by the normal route of the lymphatic circulation.

(*e*) To maintain a moist surface to the wound, and wash away dèbris of devitalized tissue and bacteria. In this last particular simple irrigation on the part of the hypertonic or isotonic solutions plays an important part.

II. At a later date to encourage and increase the number of migrating leucocytes, both with the view of increasing phagocytosis and providing a sufficient supply of active trypsin to aid the separation of sloughs.

The normal outflows of lymph is increased by the physical ("drawing") process induced by continuous irrigation of the wound with a hypertonic solution of sodium chloride, and the augmented migration of leucocytes by similar alternate irrigation with "isotonic" solution (normal saline).

Before attempting to gauge the relative value to be assigned to the antiseptic or to the phylacagogic methods respectively, it may be at once allowed that in some instances the unaided normal vital reaction may attain parallel results when treatment with simple dressings or mere exposure to air and sunlight is adopted; but, unfortunately, such results form rather the exception than the rule. Hunter, in referring to the good results which may follow primary closure of the wound, or closure by scab formation, deals with them as an exception, and tells us "thus a power of resolution is shown, even in cases where the parts have been exposed."

It may be proper here to offer some preliminary criticism as to the validity of the theory upon which the phylacagogic method is based. Hunter says, "yet injuries often excite more action than is required." It is indeed indubitable that in a large proportion of all wounds the activity of the reaction exceeds that necessary for the process of repair, or for sterilization of the tissues, proceeding in some even to the undersirable degree of acute inflammation and tissue destruction. In fact, in the process of repair, as in the normal physiological processes of the body generally, a large margin of excess is allowed to meet possible accidents in the course of the closure of the wound.

I think we may, therefore, assume that the normal vital reaction is not, as a rule, deficient in activity, and that even in a wound that heals normally by granulation both the outflow of lymph and the migration of leucocytes tend to be wasteful of the vital powers of the patient. Again, it must not be forgotten that an excessive lymph flow is in itself a serious drain upon the powers of the patient, a fact illustrated in a remarkable degree by the rapid emaciation soon to occur in the subjects of the multiple superficial wounds which have formed so strong a feature of the surgery of the present campaign. Lastly, any interference with the coagulation which limits the primary flow of lymph following the wound tends to remove one of the most important barriers afforded by Nature for the protection of the system from the dangers of the entrance of organisms and their toxins from the infected area.

The most useful practical test of the efficiency of any method of wound treatment is furnished by observation of the date at which micro-organisms disappear from the surface of the exposed tissues, and at which the wound may be safely and permanently closed by suture or other means. When subjected to this test, the antiseptic has proved itself more rapid and more trustworthy than the phylacagogic.

As an example of the antiseptic method, that known as the Carrel-Dakin is chosen because it appears to fulfil the conditions already laid down, and because in the hands of its originator it has afforded admirable results, which have, moreover, been repeated by other surgeons and in our own camps.

It may be at once allowed that the method demands special care and exactitude in application, but such objections as may be raised as to its suitability for military surgery are of a practical and not of a theoretical nature. Such are the necessity of strict supervision of the standard composition of the solution of the hypochlorites employed, the need for care and judgment in locating the instillation tubes, the necessity of regularity in the instillations of the fluid, and the difficulty in some cases of ensuring that the patient's clothing and bedding do not get soaked. All these problems are more difficult of solution in military than in civil practice, but they are not insuperable, while the last trouble attends equally the irrigation forming a part of the phylacagogic method.

Allowing these practical difficulties we find in compensation that the wound cleans more rapidly, firmer and healthier granulations form, the organisms die out more promptly, the occurrence of suppurating is reduced to a minimum, or actually avoided, secondary wound complications are rarer, and the wounds are fit for closure at a much earlier period. The treatment, moreover, attains success even when applied to suppurating wounds of some standing.

The special success which has attended the use of this method depends mainly on the highly ingenious plan of maintaining the constant supply of the antiseptic medium by specially devised tubes and on the character of the antiseptic employed. Other antiseptic methods, however, have attained results which, while less striking, yet are superior to those observed with the phylacagogic. Of these latter, the most satisfactory have been the dressing with solution of hypochlorous acid (eusol) and the iodoform bismuth compound of Rutherford Morison. The latter, which combines a maximum amount of rest to the wound, a "persistent storage" of an efficient inhibitory antiseptic, and a minimum of attention on the part of the surgeon, has much to recommend its employment in military surgery, where economy of time and labour are so important. Its employment as a primary method of treatment of all gunshot wounds is, however, not free from serious risks, and therefore, in the absence of further experience, not advisable.

In application, the phylacagogic method fails to realize the merits which have been claimed for it. The increased flow of serum from the tissues has proved of small value from the bactericidal aspect: the "fluid" "drawn" has been shown by other observers (Parry Morgan, and others) to be deficient in organic constituents and hence incomparable to the normal lymph furnished in response to the stimulus of the original injury and resulting infection; and, either in the "fluid" itself or admixtures of it with hypertonic salt solution, organisms such as the streptococci grow freely. This deficiency in the quality of the "fluid" drawn is intelligible if it be regarded as the product of a local physical process exerted on the wound itself. Such a process can hardly be relied upon to induce great additional activity either in the fluid or cellular elements which are normally provided as a response to the combined stimulus of injury and subsequent infection on the organism as a whole, in which case we have to deal with a general vital reaction of the entire system the whole intensity of which is directed towards the infected region. The phylacagogic method, in fact, while attempting to increase the normal vital reaction within the tissues, an object not always to be desired, deals inefficiently with the extraneous elements in the wound cavity which form the main obstacle to normal healing.

In practice it is found that with the phylacagogic method the initial changes in the wound are slow, tissues tend to become sodden, the separation of sloughs is delayed, and a longer period is required before the wound surface can be regarded as having reached the stage at which secondary closure can be effected. Hence the period in which secondary wound complications may arise is prolonged; moreover, in cases treated by the phylacagogic method which fail to reach the "closure" standard, a few days' treatment with an antiseptic often suffices to attain the result desired.

In passing from the subject of the local treatment of wounds, we may conclude with Hunter that "the stimulus of imperfection taking place, immediately calls forth the action of restotation"; further, that the vital operation may be most effectively aided, not by attempting to regulate and modify the process, but by striving to nullify the extraneous influences which tend to distort and interrupt it.

I can scarcely leave the subject of wound treatment in the present war without a word of mention of the most serious wound complication that has had to be dealt with—gaseous cellulitis or gas gangrene.

I can find no evidence that Hunter was familiar with this scourge. In the lectures on gunshot wounds a case is quoted in which "air came out of the wound" during the process of removal of a ball from the abdominal wall, but no mention is made of any special condition of the tissues, and it may well have been a *Bacterium coli* infection secondary to a minor injury of the colon.

Hunter was certainly conversant with the rapid decomposition with development of cellular emphysema which sometimes follows death as a result of a general anaerobic infection of the body, hence we must conclude that he would have been quick to detect a similar from the cellulitis during life.

It seems more than doubtful whether gas gangrene has ever before assumed such a serious aspect during war. The writings of Ambroise Paré make no mention of emphysema as a sign in the gangrenous wounds observed by him, neither do the more modern writings of Guthrie suggest that the hospital gangrene seen in the wars in the early part of the last century in any way resembled the "gas gangrene" of to-day.

It is clear that Lister, when speaking of hospital gangrene, referred to a process similar to that described by Guthrie, and surgical textbooks generally have based their descriptions of hospital gangrene on a complex of identical signs.

On the other hand, anaërobic gangrane under the title of acute traumatic gangrene has for many years been individualized as a definite disease, and its pathology to some extent elucidated.

It is clear that the form of hospital gangrene observed during the American War of the Rebellion coincided in character with that described by Guthrie, and in the reports special stress is laid on the observation that the process did not involve the muscles. Lastly, no mention of "gas gangrene" has been made in any of the more recent compaigns.

Hence I think it must be allowed that the frequency of gas gangrene is to be regarded as a peculiarity of this war, referable perhaps to the nature of the soil, and perhaps to the abundant diet of the men and irregularity in defaecation. In the latter relation it is a striking fact that of a small series of patients who died as a result of wounds of the colon, in every case a rapid general *post-mortem* anaërobic infection of the blood took place. On the other hand, hospital gangrene of the classical types has been conspicuous only by its absence; during a period of two and a half years I have only seen one or two cases which seemed to resemble the spongy form, although the membranous type has been occasionally seen.

HUNTERIAN LIGATURE.

No individual procedure originated by John Hunter has preserved the freshness of his name to a greater degree than the operation for the cure of popliteal aneurysm. Every student of medicine at an early date of his career makes acquaintance with Hunter's canal, and later with the principle of proximal ligature.

In one respect the influence exerted on military surgery by the knowledge of the ease and safety with which proximal ligature can be preformed has not been for the good. It has encouraged the employment of proximal ligature at the seat of election for secondary haemorrhage and even for primary bleeding from a wounded artery. Both these practices are to be condemned, except in rare itstances of absolute necessity.

It is to be regretted that Hunter himself did not write the paper describing his operation and the grounds upon which he was led to undertake it, but the paper by Sir Everard Home included amongst Hunter's writings opens up one question of considerable interest to-day.

In at least one of the cases there described, possibly in the first three, both the femoral arterly and vein were included in the ligature; in the fourth we are definitely told that the artery only was included. From that period onwards surgical opinion has been definitely to the effect that the greatest care should be taken when occluding a main artery to avoid all injury to the vein. In fact, every operation for the ligatare of an artery has been so divised that the aneursym needle is passed in a direction away from the vein in order to minimize the risk of injury to that vessel. This, not alone to avoid the technical inconvenience of immediate haemorrhage, but also with the definite object of preserving the venous circulation intact.

Observation of a large number of coincident wounds of large arteries and veins has in no way endorsed the vein that simultaneous occlusion of both artery and vein exercises any deleterious influence on the subsequent collateral arterial circulation and the vitality of of the limb.

In support of this statement a few examples illustrating the innocuous nature of operations for the occlusion of veins in general may be first given. Operations for the cure of varicose veins have demonstrated the case with which a compensatory balance is attained when the blood is diverted from the larger channels. Occlusion of the internal jugular and other large venous trunks effected in order to prevent the diffusion of septic emboli (the process of septic thrombosis was, I believe, first observed and described by John Hunter himself) has not given rise to obvious permanent rouble.

In a very considerable proportion of gunshot injuries to large arterial trunks the neighbouring vein is contused and becomes thrombosed, and this has not been shown to give rise to increased risk of gangrene of the limbs. Ligature of the common carotic artery, together with the internal jugular vein *en masse*, has been performed in cases of emergency without increased risk of the development of the cerebral anaemia and softening so often a consequence of ligature of artery alone. Further, where simulteneous ligature of both artery and vein in other parts of the body has been obligatory on account of wounds of both vessels, untoward events have not been observed.

Evidence, moreover, exists that under certain conditions simultaneous occlusion of both artery and vein is a preferable procedure. The first example, not an unmixed or simple one, may be sought in the results observed to follow the application of a single proximal ligature to the artery in cases of arterio-venous aneurysm or aneurysmal varices of the femoral or popliteal vessels. In patients so treated during the South African compaign, gangrene of the limbs followed in more than 50 per cent. of the cases. The frequency of this accident finds a simple explanation if we consider what actually results from the operation. The main vessel being occluded and the direct arterial presure from behind being practically abolished, blood which has been carried by the arterial collaterals to the distal portion of the injured trunk, instead of passing to the peripheral circulation, takes the course of least resistance backwards into the vein through the arterio-venous communication, and thus the limb practically bleeds to death much in the same way as if the distal end of the wounded artery opened on to the surface of the limbs. Hence, the comparative safety of removal of the communication *en masse* and occlusion of all four openings by ligature.

A more striking example is offered by the result of ligaturing the popliteal vein alone for the treatment of senile gangrene of the foot. W. A. Oppel, ascribing the good results occasionally observed to follow arteriovenous anastomosis for the cure of this condition to obstruction of the venous circulation and consequent rise in the blood pressure of the limbs, was led to substitute simple occlusion of the popliteal vein to produce the same effects. In six cases thus treated the extremities were seen to recover not only their warmth and colour without the development of oedema, but also a certain degree of hyperaemia of the feet and toes.

On these and other grounds it must be admitted that the balance of the collateral circulation is likely to be more efficiently maintained if the vessels which carry it on more nearly correspond in size and consequent equality in the blood pressure and rate of flow. The elimination, in fact, of the capacious main vein is a real advantage, since this for the time affords a too ready channel of exit for the diminished arterial supply as well as an undesirable reservoir for stagnation.

These considerations lead me not only to regard obligatory simultaneous occlusion of a main artery and vein as a negligible factor in the risk of gangrene of a limb, but to hold, further, that the procedure is preferable whether the vein be wounded or not. The result of the combined procedure being to maintain within the limb for a longer period the smaller amount of blood supplied by the collateral arterial circulation, and hence to improve the conditions necessary for the preservation of the vitality of the limb.

EFFECTS OF MILITARY SERVICE ON HUNTER HIMSELF.

We may now turn from the question of how far the work of John Hunter has influenced that of the military surgeon of to-day, to that of how his experience gained in the field may have influenced his own life's work.

Hunter was emphatically a student of nature; his early years were, as we know, spent mainly in the fields around his home, where he sought out such secrets as he could from his surroundings. This fallow period, while responsible for depriving him of a facile pen and literary style, yet, no doubt, opened his mind, developed habits of thought and observation, and affords some explanation of the superhuman task to which he set himself with such devotion in the later periods of his life.

The whole world was his book, and it is of some interest, in passing, to contrast the character of his upgrowth and surroundings with those of his greatest successor, Joseph Lister. Hunter gained his earliest inspiration from the limitless field of nature with naked eye and unbridled freedom. Lister, born into a home the cradle of the modern microscope, passed through a blameless career at school and college in a continuous atmosphere of scientific thought and investigation. Both great men devoted their whole energies to the cultivation of science throughout a busy and industrious life—Hunter throughout with a yearning for the pedestal, Lister concerned only with the success of his labours.

Hunter died in the midst of an incompleted and impossible task, while Lister had the incomparable satisfaction of witnessing the success of his own efforts, the goal reached, and the benefit to mankind immeasurable.

Each illustrious man, however, perhaps found his proper field. Hunter in a life of continuous stress, immoderate labour, a struggle for his daily bread and the means to pursue his researches, and a tragic death not unsuited to the fiery nature of the man. Lister, in a more equable existence, spent in steady and industrious pursuit of the one great object he had in view, and, after attaining a success duly appreciated by the whole world, passing quietly away in the zenith of his fame.

The abrupt change from a boyhood of untrammelled freedom to the life of a hard-worked demonstrator in a school of anatomy, than which no greater contrast can be conceived, laid heavy hands on Hunter; his health began to fail, and hence his transit to the field of war.

To join an army in the field is to enter the most intimate school of human nature. The most admirable features of man's character and the meanest are alike displayed. Unsuspected strength is revealed, long concealed weakness exposed, and in a year's compaign the events of a whole lifetime of ordinary existence may be passed through. Hunter entered this school at a turning point in his career after two periods—the one of comparative idleness, the second of drudgery; and little doubt can exist as to both the sobering and inspiring effect it has upon his nature. As a result of his experiences he emerged a stronger and a better man, with a vastly wider outlook on the world, and doubtless capable of forming a juster estimate of his own powers and capacity to undertake the line of life for which he felt himself to be fitted.

The life of a military surgeon on active service, however, offers advantages beyond the mere acquisition of worldly wisdom and a knowledge of men. An army is not always fighting, and the surgeon between periods of active and unceasing work has intervals of quietude which are rare in any other path of professional life. Freedom from the cares of ordinary business and the manifold duties of practice allow uninterrupted opportunities for following out lines of thought and the prosecution of research. There can be no doubt Hunter utilized these opportunities to the utmost, for throughout his writings references are made to observations and investigations made during his period of service. He tells us, in fact, that his most comprehensive and complete contribution to scientific literature—the *Treatise on the Blood Inflammation and Gunshot Wounds*—was the direct produce of the experience gathered at that time. The long period which elapsed between the conception of the work and its publication is characteristic of Hunter's method—a method founded on the desire to complete his knowledge on any subject before submitting himself to public criticism; a method desirable in itself, but when adopted by a man whose aims are of the scope of Hunter's, too often, as in his own case, robs the world of receiving the benefits of a wealth of critical observation and knowledge, which passes together with its owner to the grave.

While considering the opportunities of research his military life afforded to Hunter, one cannot help comparing them with those enjoyed by the present generation.

During this campaign laboratories, both of the clinical type and those fitted for more extensive research, have been provided not only for the base hospitals but also in connexion with the casualty clearing stations, which have performed so much of the duties of stationary hospitals near the front. A number of active young observers have been engaged in a research on every problem which the wounds and diseases of the soldiers have raised, and it may be confidently expected that a weighty harvest of new facts will have been garnered when opportunity arises for their collation and digestion.

The pathological anatomy of the lesions produced by gunshot injury to the brain, the spinal cord, the lungs, heart, and the abdominal viscera has been worked out to an extent that will leave little to desire.

New facts regarding cerebral localization and the functions of the spinal cord have been noted, while others founded on animal experiment alone have been confirmed by injuries comparable to the knife of the physiologist. Observations regarding the fevers of the field have been accumulated, an enormous practical experience of the value of the protective inoculation for enteric fevers has been acquired, while the prophylactic value of tetanus antitoxin and its influence in modifying the character of a subsequent attack has been placed beyond the region of doubt. It is not perhaps too much to expect that not only the acquisition of this extended knowledge, but also the manner of its acquisition, will exert an enduring influence upon the workers to whom we are indebted for it, and a resulting benefit will be conferred upon the community as a slight return for the misery and suffering which has been imposed upon the present generation.

May we not hope that many of the workers may be influenced as John Hunter was, and remain to the end of their careers active searchers after and exponents of the secrets of Nature, as well as better practitioners of medicine?

Many of my predecessors have striven with a varying measure of success to portray Hunter as a man and member of society; yet, the strange paucity of material at command appears to render any estimate of his personality from this point of view incomplete and uncertain.

I prefer to ask my audience to study his presentment as it hangs upon the wall before us, and from its inspiration to try and form a true conception of the man and the soul that was within him.

The concrete labour of his hands is still exhibited within these walls, while the germs contained in his writings have served to incite and direct the minds of the many searchers in the wide field of biology who have followed in his footsteps. If but one lesson could be learnt, the secrets of his untiring industry, and this pressed home on those whose privilege it is to follow in his path, great indeed might be the result to mankind. The problems that to-day await solution are no less numerous or less vital than those John Hunter sought to unravel, while the constantly increasing means of investigation at command lay a growing responsibility upon the student.

The memory of John Hunter is fresh within these walls, and it is still green without, and I cannot, perhaps, better close this unworthy effort to sustain that memory than by quoting the words of one of his bitterest foes regarding the period of Hunter's life immediately following his return from the wars:

"Durring this time he found himself at leisure for meditating plans of life that plainly denote an intrepidity of mind and a vigour of application which, nature obstacles unsurmountable by most, could not suppress in him; (plans) which few have attempted although supplied by the completest aid of academic learning."

Mr. President, posterity has judged how far Hunter succeeded in his aims, and has within the walls of this College awarded him a standing memorial which would, I think, have satisfied the man himself.—The *British Medical Journal*, February 17, 1917.

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PARENTAL RESPONSIBILITY*

BY EDWARD BEECHER HOOKER, M. D., HARTFORD, CONN.

That infant mortality may be reduced, not only should the child be protected from the dangers which surround it after birth, but it has a right to begin its life with a healthy body and sufficient vigor to offer resistance to those enemies from which even the best of care cannot always protect it. Parental responsibility, therefore, begins before the birth of the child. It begins even before conception takes place. It begins when the possibility of conception exists, either in the legal union of marriage or the lawless union outside of matrimony.

Life is rightly regarded as sacred, and, as civilization advances, increasing efforts are made to preserve and prolong it. The attention now being directed to infant mortailty is evidence of this regard. The causes of mortality are being sought and, so far as possible, are being lessened or removed. The efforts in this direction should not be relaxed, but rather intensified. There should also be a deeper sense of the responsibility of creating life.

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* Bureau of Pedology, A. I. H., 1917.

All forms of life below that of man are entirely lacking in this sense. Nature is extremely wasteful in the process of creating and preserving life. The male element necessary to the fertilization of the ovum in the female is produced and expended in wasteful extravagance, whether in flower, fish or mammal, including man, in order that at least some of it may reach the ovum and impregnate it. The eggs are also produced in vast numbers in certain orders—the fishes, for instance—that some of the young, at least, may escape the dangers to which they are exposed after birth.

In order that life may be perpetuated, nature seems bent on producing as many individuals as possible, that in the struggle the fittest may survive and carry on the species, the weaker perishing in the conflict. This does not mean that those that survive are the most useful or the noblest, but simply the strongest, the best fitted to resist the inimical forces of their environment.

While bound by nature's laws, man is nevertheless able, in some instances, and has a right, to improve on her methods. Realizing that healthy vigorous parents are more likely to have sturdy vigorous offspring, he has been able to improve the stock of various animals by careful breeding.

It is not practicable, or even desirable, to control the mating of men and women on the purely physical basis, regardless of sentiment and affection and all the finer feelings that make life enjoyable and worth living. It is desirable that those entering matrimony should be free from disease and capable of producing healthy children. The laws enacted in a number of states requiring certificates of health before the issuance of marriage licenses are evidence of the prevelence of this sentiment, whether such regulation be wise and effectual or not.

The aim then in the reduction of infant mortality should be not only to save as many babies as possible by guarding them after birth, but also to produce healthy children of a high degree of natural resistance. It is quality that is wanted, not mere numbers.

It has always seemed to me faulty reasoning to estimate a country's stength simply by its population and its material resources, to consider its birth rate as an index of its vigor. What *kind* of men and women are its inhabitants? What is their character, their courage, what are their ideals? Of course there must be enough births to make up for the deaths, or in time the nation will become extinct, but the character of a people is of as much importance as their number.

It is the duty of every married couple to do their part in carrying on the race. The higher their endowments physically, mentally and spiritually, the greater is their obligation to bring children into the world, who will do their part in turn in aiding the progress of the race. But are these valid reasons why the fulfilling of the great obligation of creation should be left to chance? Are these not convincing reasons why intelligence should be exercised in assuming this responsibility? Surely the health of the mother and the health and vigor of the offspring are worthy of consideration. On the other hand, selfish considerations should not control so vital a matter. Love of ease, disinclination to bear discomfort, or even hardship, should not be made the excuse for shirking this duty.

Whence arose the idea that in human beings procreation should be left entirely to nature and that intelligence and foresight should have no part in it? Why has the exercise of such control been considered and is still considered morally wrong? In this idea is founded on the act of Onan, as recounted in Genesis 38: 9, it rests upon a very insecure foundation. For reasons that seemed good to Onan, he did not wish to become the father of children by his brother's widow, although the customs of his people and his father's commands called upon him to marry the widow. Therefore, in his sexual relations with her, he spilled his seed on the ground. It is further recorded that this displeased the Lord, wherefore the Lord slew him. In Genesis, 19, there is an account of a good man named Lot, who dwelt in the wicked city of Sodom. This good man entertained two angels, appearing in the guise of men, who excited the displeasure of the wicked inhibitants of Sodom, who attempted to misuse them. In order to appease the people, the good Lot offered to give them his two virgin daughters, to do with as they pleased, if they would not harm his angelic guests. There is no evidence that Lot's conduct displeased either the angels or the Lord.

Later, in Lot's old age, after Sodom had been destroyed and Lot and his daughters had fled to the mountains for safety, there seemed no chance for the daughters to secure husbands or for Lot to have other descendants. Therefore, the daughters made their father drunk and on successive night each lay with him and conceived and were with child by their father. There is no statement in Holy Writ that this displeased the Lord.

In looking to the Bible for guidance in these vital matters are we to conclude that it is wrong to exercise judgment in regard to bringing children into the world? And shall we conclude that a man has a right to offer his daughters to a mob when his home is attacked? Or that it is good deed for daughters to make their father drunk and have sexual relations with him to perpetuate the family name?

The Bible should be regarded as a revelation of God's dealings with man and man's relation to God. The New Testament especially, giving Christ's life and teaching, should be held the inspired source of spiritual understanding and authority. Nevertheless it is hardly wise, or even safe, to deduce rules of conduct and laws of morality from the behavior of Old Testement characters. It is exceedingly difficult to determine the meaning of many of the regulations imposed upon the Children of Israel and the reason for their promulgation. For instance, Moses has long been regarded as a sanitarian because of certain laws which he promulgated for the conduct of the Israelites. Oriental scholars in recent years have determined that these laws had no sanitary purpose whatever and were of a purely ceremonial and religious character.

I have gone into the religious aspect of this question, at some length, since the idea that intelligent control of conception is sinful seems to have a biblical origin. This problem must be solved, as must all sociological problems, by determining what effect it has on the welfare of the race—the true welfare, its physical, moral and spiritual development. Moreover, we may rest assured that whatever does promote the welfare of the race will be in harmony with true religion. For the commandments of the Almighty are put forth for the very purpose of promoting that welfare.

This question is a practical one. As physicians, we are constantly obliged to meet it and to give an answer of some kind. We should have the answer ready, whatever it may be, and have the courage to give it. It will not always be the same,—different circumstances and conditions will require different answers. It may be our duty to give the advice before it is sought. An experience in my practice will illustrate this fact.

A young woman of delicate physique, whose mother died of consumption, married a young man of ability but of meager salary. They went to housekeeping and she assumed all the work of the home, a convenient apartment. In a little over nine months she gave birth to a child, which she was unable to nurse. In about a month she resumed the duties of housewife, with those of a young mother in addition. In less than a year she gave birth to a second child, for which again she had no milk. Again she resumed her duties as housewife and mother. I told husband and wife in plain language that the welfare of the mother, the present children and possible future ones demanded that longer spaces of time should intervene between conceptions. In seven months she conceived again. The husband then came to me asking to have something done to prevent the pregnancy going on to full term. I refused and succeeded in making him realize that, since he was responsible for the state of affairs, he must be man enough to carry his share of the burdens and make those of his wife as light as possible. I made him understand, what I firmly believe, that the instant conception occurs a new soul is created and a new life started, which may not be destroyed, save only to rescue the mother from death. Last December the third child was born and it has been a struggle to nourish and keep him alive. He has had a cough and low fever most of the time. He is poorly nourished and under weight. Though now gaining in weight, his lung conditions improving and the temperature running a trifle lower, his future is uncertain. And the burdens and responsibility laid on this young mother are heavy. She has stood the strain thus far surprisingly well, but neither she nor the children are being given a fair show.

Will any one dare to say that greater self-control and a higher degree of unselfishness on the part of the husband would have been in any sense immoral or contrary to the highest interests of the whole family or of society itself?

The responsibility of parenthood is great enough in the honorable union of marriage. That involved in becoming the parents of illegitimate children is still heavier. There is no need to recount the high figures of infant mortality among illegitimate children—they are too well known. Within the past few years many vice commissions, made up of men and women of high character and attainments, after patient investigation and mature consideration, have rendered reports stating what were the vice conditions of various cities, their causes, so far as discoverable, and what remedies, if any, could be applied.

Perhaps the most painful portions of these reports dealt with the fate of illegitimate children consigned to various institutions. Their mortality is very high.

It is at once interesting and saddening to note the reception which such reports almost always meet from a large portion, perhaps a majority, of the citizens of the communities affected, and especially from the press. Instead of horror at the conditions disclosed and a vigorous determination to make them better, too often there is resentment at the disclosures and a fear that they may damage the reputation of the city and injure its business. I know something of this from personal experience, for I have served on a vice commission. Whatever sins men may have to answer for in sexual irregularities there is none greater than being responsible for the entrance into the world of a helpless child and then deserting it. The immorality of unlawful sexual relations is little compared to the wickedness of the desertion of one's own child.

After the birth of the child under the usual home conditions, another phase of parental responsibility begins. Both parents should be sufficiently educated and interested enough in the welfare of their children to understand the common causes of illness. Too often ignorance or indifference or selfishness operate to deprive the child of the protection to which it has a right. It is not wholly among the poor that some phases of this are seen. It is culpable for a vigorous mother, with breasts full of milk, to refuse to nurse her child, simply because she does not want to be tied down by this maternal privilege.

When ignorance lies at the bottom of insanitary conditions, as it does in the majority of cases among the dwellers of tenement houses, there is a large and possibly a fruitful field for effort. Several years ago a number of men, in the city in which I live, were greatly stirred by the Men and Religion Movement, especially that phase of it dealing with social service. A group of us, belonging to the same church, determined that it was not enough simply to have been emotionally aroused, but that these emotions should be transformed into actual service. A social service committee was formed and has been in existence and at work since that time. I have before alluded to this experiment—if such it may be called—in sociology, and shall probably do so at future meetings of the Institute when its work has a bearing on subjects under discussion.

Realizing that filth of the kinds, especially garbage and horse manure, assists the breeding of flies and that the flies then contaminate food with germs, thus causing various infectious diseases, such as infantile diarrhea and typhoid, we determined upon an unobtrusive but persistent personal campaign with the end to help both the tenement house dwellers and the city sanitary authorities to keep the back yards clean in the tenement house district. The streets of this district were assigned to the members of this social service committee and each one of us, to the best of his ability, inspects these yards, keeps track of their condition and reports back to the committee, which meets once a month and, of course, has lunch. We invite to these monthly lunches the superintendent of health, the superintendent of streets, the building inspector and the superintendent of schools. On our inspection tours we note also the condition of streets, the fire escapes, the position of new tenement houses, etc. At the lunches the various officials, who are our guests, hear the reports and take note of infractions of the sanitary and tenement house laws and the faithfulness or delinquency of the city's garbage collectors and street cleaners. In four or five years we have made quite a definite impression on this tenement house district and it is unquestionably a pleasanter place to live in and more sanitary, though still capable of very marked improvement.

Now, people can be helped to live more cleanly as regards sanitation, as well as morals, in two ways: One way is to punish them if they break the laws (which are enacted for their benefit, though they seldom realize it) and thus through fear of penalty endeavor to make them law-abiding. Another way is to enlighten the understanding, that they may realize that their own welfare, and that of their friends and neighbors depends upon the observance of certain regulations. Both ways are necessary under the conditions of modern civilization, especially in crowded city life, but the far better way, if possible of attainment, is the creation of an earnest desire for right living.

Now what has all this to do with parental responsibility, may be asked; such observations belong to the Bureau of Sanitary Science and not Pedology. On the contrary, this is the place for them. The workers in our Social Service Committee endeavored to reach the fathers and mothers in the tenements and show them their responsibility for the health of their children. We tried to make them understand that if garbage is thrown out of the windows into the back yards instead of being placed in covered garbage cans more flies will breed and more sickness of their babies will follow. Many hucksters and peddlers stable their horses in this district and, in spite of ordinances to the contrary, manure accumulates and is improperly enclosed or screened. We tried earnestly to impress upon the parents that manure creates swarms of flies and that flies meant sick babies. Our efforts met naturally with but partial success, very partial. Differences of nationality and of language, a lack of a reciprocal social sympathy prevented a full understanding of each other. Nevertheless our work was by no means wholly fruitless. We have learned something ourselves. One thing is that the dwellers in the tenement are very much like those in the houses of wealth and are a pretty decent, well-meaning lot of people, handicapped by tradition, ignorance, and insufficient means. Another thing we learned is that men alone cannot effectively perform the job we have on our hands To reach the housekeepers, the mothers, the trained social nurse is necessary, with a knowledge of several European languages. Through the cooperation of several organizations such as the Visiting Nurses, the Society for Prevention of Tuberculosis and the General Hospital, three visiting nurses will endeavor, while performing their various duties, to instruct and interest the tenement house mothers, so that they will understand the garbage-manure-fly-sickness correlation and realize the parental responsibility to decrease infant mortality and their ability to do so. We are hopeful that our sociological experiment may ultimately become more than an experiment.—may indeed become worthy of being regarded as a genuine social service, and that a definite improvement in infant mortality will in course of time result.

That I may not be misunderstood or misquoted, I desire to emphasize views already expressed. That our children may become self-controlled, right-thinking, healthy men and women, and later intelligent parents, it is imperative that they be early given proper instruction in sex physiology. This should be done in the home, if the home conditions render such instruction possible, otherwise it should be given in the schools, when it can there be given adequately and properly, but not until then. Already sufficient experience in such school instruction has been accumulated to demonstrate, that it is perfectly feasible to undertake it, with great benefit to the very large number of boys and girls growing up with distorted ideas on the subject. Information in regard to the regulation of conception should not be given to boys and girls of any age. Still less should it be published in pamphlets and indiscriminately distributed. Men and women about to marry, or already married, and they only have a right to such information. And it should never be given for the purpose of enabling them to avoid parental responsibility, but to help them to more highly undertake it.

When young men, or young women, about to be married, come to me for advice—and many such have come—I tell them of their duty to help carry on the race by becoming fathers and mothers and that it is their privilege and their right to fulfill this duty as intelligently as in them lies. Then I tell them of the great happiness and blessing that will come to them if they have children, a happiness more lasting then any other earthly joy, with wonderful possibilities of development and understanding that can be attained in no other way. For such is my profound belief. Even if we have to part with our children for a time, it is a wonderful experience and happiness to have possessed them. And from the bitter sorrow of this parting, from the inevitable suffering of the separation, there comes a new understanding of life, a realization that there is no death, that life is eternal, that the beloved son or daughter has only entered upon another phase of life, that instead of dying they have been born again. Longfellow, poet and seer, expresses this idea in lines that have comforted many a sorrowing father and mother.

> "There is no death; 'what seems so is transition.'
> This life of mortal breath
> Is but the suburb of the Fields Elysian,
> Whose portal men call death."

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HOMŒOPATHY.

By Dr. H. G. Glover, Jackson, Mich.

Mr. President, Ladies and Gentlemen:

This paper, as you will soon discover, is rather discursive. At least, it may seem so; but after all, every great subject or question is more or less intimately connected with many other subjects. "One touch of Nature makes the whole world kin." I like to have men speak or write out of their own experience. So, if you will pardon me, I shall speak out of mine. Talking about oneself is not just the same thing.

Things that have fixed themselves in our consciousness as Truths have almost invariably come through the triple alembic of Heart, Mind and Soul. It frequently happens that we for a long time "See through a glass darkly," and then, suddenly something clears the "wind-shield," and things look different.

We stumble along through life feeling quite sure in our hearts oftentimes that we have taken the right by-path, and that eventually we shall arrive—and finally we do. Then we suddenly become conscious of the fact that the route over which we have travelled was far more circuitous than we had planned, or even dreamed that it would be. And so, by "indirection," as Polonius said, "we find direction out."

I began the study of medicine and Homœopathy when I was about eighteen. As "De Habitant," in Drummond's beautiful poem says, "Dat's a long tam ago." We shall not be *too* particular in stating just *how* long.

At the time I did not even know the meaning of the word Homœopathy. It just so happened—if anything ever does "happen"—that a dear friend of mine, a man much older than I, took me to his family physician, old Doctor Botsford, of Grand Rapids, as I was at that time living there.

From the friend and from the good old doctor I got my first glimmerings of the homœopathic *method*, but not of the Great Central Truth of Homœopathy. After a time—long time it seems to me—I went to college—"Old Hahnemann," of Chicago. What a brilliant lot of men made up that faculty! I say that advisedly, after years of observation of the medical profession. Among them were Hoyne and Hawkes, true homœopaths, and so-called "high potency" men. From these men I learned something of the Law of Similars, and of how to select the "indicated" remedy in accordance with that law. In the Skin and Venereal Clinic of Hoyne, and the General Medical Clinic of Hawkes, I saw what could be done with the single remedy and the minimum dose. Soon it was useless to tell *me*, it was "bottled moonshine." Later on, after my graduation, I was fortunate enough to "win out" in a competitive examination and was appointed house surgeon for Hahnemann Hospital. Four of the eight departments in the hospital were under my supervision. Among these were the two mentioned above. I had ample opportunity to become acquainted with the hospital pharmacy and the various potencies kept in stock there, as all for the remedies prescribed for my departments were put up by me. So you see, if the one M. was prescribed, I knew positively that the patient got that potency. Frequently in the departments of Hoyne and Hawkes I had to give the higher potencies. I had a fine chance to watch their effect. Hoyne had a way of prescribing for, say, a case of eczema—infantile eczema. Bad cases they were too, that came to that clinic. *Graphites*, perhaps, would be the remedy. It would be given first in the sixth trituration—never lower. No improvement. Then the twelfth. No improvement. This would sometimes—quite frequently—go on until the one M. or to M. potency was reached. Then the next time the baby was brought in a murmur of surprise at the great improvement would go all over the class.

The same method was often pursued as the Medical Clinic. It often worked the same, too. There is an old, old saying, "Seeing is believing." These things made me say to myself, "There must be something in this theory of the *dynamic* power in drugs." When I got out into general practice I did not forget what I had seen in the clinics. In the chronic cases particularly I used the higher potencies whenever opportunity presented itself. Frequently I made very satisfactory hits. I recall one case of twenty years ago in which *Causticum* 200 cleaned up an obstinate case of enuresis. This was one of the very first cases in which I used, on my own responsibility, the higher potency.

Now don't misunderstand me. I am not an exclusionist in regard to the potencies or anything else. Exclusivism, particularly in our method of practice, is a sort of mental dry gangrene. The man who prescribes the first dilution or even the tincture in accordance with the Law is just as good a homœopath as the fellow who might for the same case give the C.M. potency. But the chances are that the man who uses *either* the high or the low *exclusively* will, in the long run, be "distanced" as a prescriber by the fellow who intelligently and carefully uses *both*. The man who understands the use of *all* of the tools in his kit is much more likely to be an all-around good workman than the fellow who understands to use of only a few.

But why should we quibble amongst ourselves over the question of the efficacy of the higher potencies when the so-called dominant school is daily proving in the laboratory not only the *Law* of Similars but the efficacy of the high attenuation as well? Myer Solis-Cohen, A. B., M. D., of Philadelbhia, has put himself on record in the *Interstate Medical Journal*, March, 1914, as to "The apparent toxicity of the infinitesimal doses of *Tuberculin*." I quote him. Accustomed as most are to think of *Tuberculin* in terms of thousandths, hundredths and tenths of a milligram, and even in milligrams, it seems incredible that clinical results can be obtained from doses so small as one-billionth and one hundredth of a billionth of a milligram." When you get home sit down and figure that out, please—I can't. I can only call your attention incidentally to the fact that one milligram is approximately, etc., etc., 15/1000 of a grain. Imagine, if you can, *billionth* on this quantity—and then, if your imagination is still in working order, imagine *one hundredth* of a billionth of 15/1000th of a grain. Talk about "bottled moonshine" and star dust and ether vibrations and potentized emanations from the magnet! Why, at this rate, we fellows who occasionally give the 30th or 200th potency will be soon wallowing in a sea of materialism, and Hahnemann's theory of the spiritual dynamics of drugs will sound coarse and crude.

As I was writing this paper a representative for P. D. & Co. called on me. The pamphlet I hold in my hand was among those he put on my desk. It is dated March 23, 1916, the day I received it. I want to read a few extracts from it.

W. B. Cannon, George Higginson Professor of Physiology in Harvard, in his valuable book of last year on the "Bodily Changes in Pain, Hunger, Fear and Rage" describes a very delicate laboratory experiment in which he domonstrated that contraction of his longitudinal muscles of the intestine could be inhibited—"noticeably inhibited"—"by Adrenin, one part in 200 millions!" A pretty heavy "connon shot" that for the "Old School" bulwarks. As we used to say when I was a boy. "How is that for high." Do any of you recall the alleged "joke" of years ago about putting a grain of a drug in Lake Superior and taking a homœopathic dose out of Lake Eire?

And "now is the winter of our discontent made glorious summer" by Serums, Vaccines, Bacterines and Phylacogens. Apropos of this I quote from Cabot, of Harvard, Case Histories in Medicine, p. 276: "The homœopathic principle, 'Similia Simillibus Curantur' and the minute doses still used by a *minority* of homœopathic practitioners, are paralleled closely by the vaccine therapy (especially tuberculin therapy) which has come into vogue in the past decade. It is agreed, as it seems to me, by most of those who have considered the facts, that the homœopathic dogma is *sometimes* true. On the other hand, most honest homœopaths admit that since in many instances they can find no way to apply their principle, they must often fall back on the use of ordinary drugs in the ordinary doses used as the rest of us use them—independent of any dogma." "A Daniel come to judgment!" It is quite evident that the excellent and intentionally fair-minded doctor still has something to learn—about Homœopathy.

Sometimes when I think of our friends, the enemy, in the old days, and of the scorn and derision and contumely with which the homœopath was regarded, and then think on the change of attitude of the present time, and of the very evident desire to get us all well herded in the fold of the A. M. A., I am reminded of those old lines of Pope:

"Vice is a monster of such horrid mien
As to be hated needs but to be seen;
Yet seen too oft—familiar with her face,
We first endure, then pity, then embrace."

Or of Goldsmith's line, "And those who came to scoff, remained to pray."

And then on further thought I am glad to acknowledge that Tennyson was right, and that "The thoughts of men *are* widened with the process of the suns."

To return for a few minutes to vaccines. Has it ever occurred to you, ladies and gentlemen, that there is *one* thing that can never be *exactly* figured out in the laboratory, and that is, *the personal equation in every case of disease.*

We, as homœopaths, have been taught to believe that the *individuality of the patient governs and controls the symptom complex or disease expression.* Is this a *fact?* Or it is *not?* If it is *not* a fact, then all of the briliant prescribers since Hannemann's time, as well as the very humblest workers in our ranks have been following an ignus fatuus—there is no such thing as "differentiation"—the *name* of a disease and not the *patient can* be prescribed for—the Old School is right, and we are wrong—there is no such thing as a *Phos.*, a *Sulph.*, a *Nux*, a *Bry.* or a *Puls.* type of patient—rheumatism is rheumatism—scarlet fever is scarlet fever—pneumonia is pneumonia, regardless of the *person* afflicted. "Then is our preaching vain and our faith is also vain," and everything from acne to vulvitis can be cured with some one or more of the vaccines from number one to number forty-eight. Good prescribers in our school who daily use a wide range of remedies, and a wide range of potencies, too, have hard enough work to find the exact simillimum. What then can be hoped in the way of scientific accuracy from the vaccine shot gun method?

I grant you that if even a *poor* marksman keeps *continually* shooting he will be quite sure to *occasionally* bring down some game, perchance a fine quarry. But what of the poor unfortunates he has only "winged" or crippled? What becomes of them? Have they been in *any way* advanced on the road to health? Or have they only been pushed a little further towards the human "discard?"

Are we to have a conscience in this business—one that does *not* "make cowards of us all"—or are we going to take the "easiest way"— move in the line of least resistance—listen to Iago's whisper, "Put money in thy purse!"—and become mere grabbers after dollars? Well might one say in the slightly paraphrased words of Brutus—"I had rather be a dog and bay the moon, than such a homœopath!" Dr. Chas. Mayo, known the world over as a surgeon, recently said in the Clinical Congress of Surgeons at Boston—all honor to him for his candor and honesty in saying it—"We (the Old School, mind you) are proving the correctness of the law, Similia Simillibus Curantur, as enunciated by Hahnemann." He said a number of other complimentary things, but the above is quite sufficient.

Shall *we* then barter our birthright for a mess of pottage—and a bad mess as that?

Shall *we* then "sell the mighty space of our large honors for so much trash" as may be found in so many c. c.'s of number 36 or number 47—or 4-11-44—as you choose?

How many members of this society have, within the past decade, read that wonderful defense of Homœopathy written many years ago by that valiant defender of the faith whose sturdy frame was for so many years seen on the streets and in the hall of learning of this beautiful little city—Dr. Samuel A. Jones?

No matter how many times you may have read it, I urge you, when you go home, to read again "The Grounds of a Homœopath's Faith," and go from the reading to your work strengthened, uplifted, fortified. I am well aware that I am now about to tread on dangerous ground. Nevertheless I am here to say what I think—and it seems to me that in the medical world of this country—which, of course, means the dominant school—all the signs of the times point to the fact that a well organized movement is on foot—fathered and guided and controlled by scheming, conniving—I had almost said unscrupulous—seekers after place and power to suppress and, in a measure, subsidize the medical liberty of the public at large, and establish a system of medical surveillance and monopoly essentially akin to the spirit of militarism which has resulted in making Europe at this moment a hell of horrors. I may be wrong in this. I sincerely hope I am. But if I am *not* wrong, and the A. M. A. keep on absorbing the members of our school, and that movement ultimately *succeeds*, where will the homœopath come in? The A. M. A. will then be the gigantic pussy who has eaten the canary—and we'll be the canary, or, more appropriately, the "jay"—in the most derisive acceptance of the term. It seems to me that never so much as now did our own welfare as a school medicine and the welfare of humanity at large demand that we "stand by our guns."

In this audience I see a good many who are strangers to me—some with whom I am slightly acquainted—a few whom I have known long and well. Before I leave the floor I want if possible to put myself on terms of closer intimacy with you all. I want to know the present day homœopaths better—those in this State particularly. In order to do this I shall have to give you a few glimpses of the kind of fellow I delude myself into thinking I am. Was it Talleyrand or Rochefoucald who said that "language was given us to conceal our thoughts?" No matter. I do not *fully* agree with either or both of these very clever men. Doubtless *some* of our thoughts were better concealed. However, I much doubt the possibility of concealing them through the non-use or the use of speech. "As a man thinketh in his heart *so is he.*" And "thoughts" though they be given no tongue, will, like murder, "Speak with most miraculous organ." This may give you *one* glimpse of me.

I believe in the great avatars, whoever they may be, who are constantly in the vanguard of progress, and who are leading the races of men to mental, moral, physical and *spiritual* light, for these things are really *one*.

I believe with the great bard Tennyson that "Men may rise on stepping-stones of their dead selves to higher things." I believe with Cowper that "God made the country, and man made the town," and you can judge for yourselves which is the better. I believe with Bliss Carman, who, in my opinion, writes the best verse of any living English-speaking poet, that aside from the moilers and toilers in the great cities—

"There be others,—happier few.
The vagabondish sons of God
Who know the by-ways and the flowers
And care not how tho world may plod.

"They idle through the traffic lands
And loitre through the woods with Spring,—
To them the glory of the earth
Is but to hear a blue-bird sing."

I believe that—

"We build the ladder by which we rise
From the lowly earth to the vaulted skies,
And we mount to its summit round by round."

I believe, and often say, in the beautiful language of Burns that we should—

"Gently scan our brother man
Still gentlier sister woman ;
For though they gang a kennan wrang.
To step aside is human.
One point must still be greatly dark –
The reason why they do it ;
And just as lanely can ye mark
How far perhaps they rue it."

And last, but by no means least, I believe, profoundly believe, that very minutest detail of this wonderful world and more wonderful universe in which we live and move and have our being is governed by *law*. Many of these laws we have *dis-*

covered or *un*-covered and formulated. Not the least of them was shown to us by the immortal Hahnemann in the formula "*Similia simillibus curantur.*"

I believe in the law and the formula as thoroughly and profoundly as it is possible for me to believe in anything. I believe in it through having personally tested it during an active practice covering a long period of years.

I believe in it as operative through the Mother Tincture or the D. M. M. potency. I have used both in my practice.

I believe in the *men* who make up the great army of practicians who *use* that law. The constant use of a good thing reflects good on the *user*. This may be one of the reasons who homœopathic doctors are almost invariably *good fellows*. All doctors are pretty good fellows I grow more and more to believe, but homœops. are *damned* good fellows. If you don't think so *look around you !*

You see I am patting myself on the back a little. Now that I have stated some of my "believes" I leave it to you to judge whether they are "bad believes" or "good believes."

And finally, Mr. President and members of this society, when at the end the summons comes for me to join the innumerable caravan that moves to the pale realms of shade, I want to go down into that valley of the shadow declaring to the last my allegiance to that storm-beaten but still triumphant banner upon whose folds are written in letters of living light these immortal words—*Similia simillibus curantur.*—The *Homœopathic Recorder,* April 15, 1917.

EDITOR'S NOTES.

The Dietetic value of Roots and Tubers.

The prospect of a serious shortage in the potato supply is pressing into service other vegetables of the sort that may be substitutes. The general drawback to them all is the very large percentage of water which they contain compared with the potato. The potato itself contains on an average 75 per cent. of water, which, however, is much the same proportion as is contained in raw meat, while the turnip contains as much as 90 per cent. of water, which is 2 or 3 per cent. more than is contained in a fluid such as milk. The apparent solidity of the turnip is, in fact, remarkable having regard to its large percentage of water. Unlike the potato, however, the turnip or swede contains no starch, the predominant constituent of the potato, the carbohydrates present being in the form of sugar, and in the process of boiling much of this sugar is lost. The same is true of the beetroot, which, of course, is very rich in sugar. The carrot also contains a relatively large amount of sugar, while its percentage of moisture is less than that of the turnip but 10 per cent. more than that of the potato. The parsnip contains even more sugar than the beet, but rather less water. The protein value of all these vegetables is poor; they are valuble chiefly as sources of carbohydrate in the form of sugar. They are bulkier foods than the potato owing to their large holding of water. The onion, containing as much as 90 per cent. of water, shows a small dietetic value, and its mission would appear to be rather that of a condiment than of a nutrient, and a very wholesome and serviceable condiment it is. There is one constituent of root foods which is sometimes overlooked, and which may have a definite dietetic importance, and that is the curious carbohydrate known as pectose, which appears to replace starch in certain vegetables, and notably the turnip. Pectose adds to the mucilaginous character of the puree, and it is the foundatation of the gelatinising property of cooked fruit juices. The pectins, in fact, form gels, to use the modern language of colloidal chemistry. It is possible that this property of the pectins renders them a valuable adjuvant in the metabolic process apart from the consideration of a direct carbohydrate value. The word food commonly conveys a substantial material, but we cannot deny th importance of certain constituents in comestibles which, though they may not directly nourish, yet afford valuable, if not essential, assistance in the process of nutrition.—The *Lancet*, March 17, 1917.

Hydrocarbons in Fish Liver Oil.

The discovery of a high proportion of hydrocarbon in fish liver oil is remarkable, and should set chemists and physiologists thinking as to how its presence is to be explained in place of the usual saponifiable fat or glyceride. Mr. A. Chaston Chapman reported at a recent meeting of the Society of Public Analysts that a sample of oil from certain species of sharks caught off the coast of Morocco had been found to contain as much as 90 per cent. of unsaponifiable matter, consisting almost entirely of a new unsaturated hydrocarbon to which the name of spinacene has been given and the formula C. H. assigned. Apparently there are two main classes of shark-liver oils, the one having a specific gravity of about 0·86 and containing a very high percentage—up to 90 per cent.—of unsaponifiable matters, and the other having a specific gravity of 0·91 to 0·93 and consisting largely of glycerides with smaller proportions of unsaponifiable matters containing cholesterol. As Mr. Chapman points out, the fact that these two classes of oils have totally different chemical characters and could not therefore be used for the same purposes makes it desirable to qualify the simple designation "shark-liver oil" by a statement of analysis. In soapmaking, of course, an oil containing so much hydrocarbon would be practically useless. Should such oil find its way into cod-liver oil the therapeutic intentions of the prescriber may well be set at naught, hydrocarbons, as it well known, possessing no nutritive value.—The *Lancet*, April 21, 1917.

Medical Similes in Literature.

One of the great differences presented between the general literature of the masters of the nineteenth and twentieth centuries and the works of their predecessors, both immediate and remote, is the disappearance of the medical simile. The reasons for this are well summed up in an attractive paper by Dr. W. R. Jordan in the January issue of the *Midland Medical Journal*. Dr. Jordan points out that the scholar of the Renaissance took all learning as his province, anatomy, physiology, and psychology with the rest, and used that learning to illustrate his points and exemplify the types of his creation. The medical learning of such a scholar was necessarily derived largely from the treatises of Galen and his great forerunner Hippocrates. Hence the medicine of imaginative writers from Rabelais and Shakespeare at one end to the age of Anne at the other is derived from Hippocrates; for it was at least 50 years after Harvey's great discovery before its meaning was obvious to readers as well as writers to extent that would make the introduction of similes drawn from Hippocratic medicine appear ridiculous. Rabelais, physician as well as priest, lectured upon the works of Hippocrates and Galen, and it is natural that his immortal medley should be full of illusions to their science. The so-called First Book of Rabelais, or chronicle of Gargantua, contains elaborate anatomical remarks on page after page, and throughout all the books a knowledge is shown by the writer, and assumed by him for the reader, of the physiology of the day. Next to Rabelais comes Shakespeare in his love of the medical simile, founded on on the physiology and pathology which were universally accepted before the publication of Harvey's discovery. Such physiology lent themselves extraordinarily well to literary similes, the reason for this being that they resolved themselves into general doctrines, supported by authority, and uncomplicated by opposing theories. Matter was composed of four or five elements having certain elementary and opposing qualities. The human body was a mixture in average proportions of these things, variations in those giving rise to the different temperaments. "From the the doctrine of the four elements to that of the humours is an easy translation," says Dr. Jordan, "for there was a close relation between the two; indeed, the term elements is occasionally somewhat loosely applied to the humours and also to the elementary contraries." Galen set forth the relations between the humours, the elements, and their qualities, and complicated the story by introducing the season of the year as a factor in pathology. Upon physiology and pathology of this kind Chaucer, Bacon, Ben Jonson, and especially Shakespear, perpetually drew, while Dr. Jordan's quotations, from many authors prove that numerous passages, which are quite well known, and some of which are frequently quoted, lose their exact application for readers who cannot appreciate the origin of the metaphors employed or the reasons for the phraseology.—The *Lancet*, March 24, 1917.

The Metropolitan Water-supply.

The issue this week of the report on the condition of the metropolitan water-supply during the month of December, 1916, concludes the monthly returns for that year. The last reports we dealt with referred to the condition of the supply during the months of August, September, and October, November was a comparatively wet month, the mean rainfall in the Thames basin being 4·28 inches, which is 1.58 of an inch above the mean rainfall for that month during the previous 33 years. The effect on all the three raw waters (Lee, Thames, and New River) was a deterioration in quality, as judged by the albuminoid nitrogen, permanganate, turbidity, and colour tests. The filtered waters likewise deteriorated in quality, according to these tests, except that the filtered water of the Lee river showed no change as regards colour. Compared with the 1915 averages all three raw waters yielded results worse than their respective averages. The filtered waters also yielded, generally speaking, results worse than their respective averages. In regard to bacteriological results all three waters contained more bacteria than their respective averages for the year 1915, but the filtered waters yielded not unsatisfactory results, 93.1, 90·9, and 56·4 per cent, of the filtered waters derived from the three river sources containing no typical coli even when 100 cubic centimetres of the water were examined. In December the mean rainfall was 3·41 inches, or

0.89 of an inch above the average for this month during the previous 33 years. Some improvement in the chemical quality of the raw waters was shown on the previous month, and compared with the 1915 averages there was improvement in the raw Thames water, but some deterioration in the Lee and New River waters. The filtered waters also showed some deterioration in quality and contained more bactaria than their respective averages for the year 1915, the results showing that 67·4, 50·0, and 41·1 per cent. of the filtered waters respectively contained no typical *B. coli* in 100 cubic centimetres.—The *Lancet*, March 24, 1917.

The Conservation of Milk,

The prevention of waste would go far to solve the food problem at the present time, and one of the most promising ways of doing this is by preserving perishable foods. Liquid foods are specially liable to loss and contamination, and should therefore be desiccated. Methods which in the past have been found wasteful may well now prove to be economical in view of shortage and advanced prices. We shall soon arrive at the period of the year when the maximum output of milk is reached, and waste of this valuable fluid food material is notorious. Its preservation by concentration with the addition of sugar is already severely handicapped by the shortage of the preservative itself, besides which the milksyrup so produced is not ideal for general food purposes. Milk, of course, can be concentrated without the addition of sugar, but the product cannot be said to be satisfactory, as it is very liable to chemical changes, involving, for example, the precipitation of its milk-sugar and of calcium salts, chiefly in the form of citrate. The desiccation needs to be carried a step further and the whole of the water removed. But there are two difficulties about the complete drying of milk. The first is that if too high a temperature is employed the constitution of the milk is seriously disturbed: the albumins are coagulated, enzymes are destroyed, the fat is separated, and the resulting powder does not re-form an emulsion with anything like the appearance and character of milk. Nevertheless, the product thus obtained possesses a high nutritive value and would save much waste of useful food, particularly in the summer. The water can, however, be easily withdrawn from milk by another process, which consists first in concentrating the fluid at a low temperature in a vacuum pan and then forcing the concentrated milk through a spray producer into a capacious chamber through which flows a current of warmed air. The moisture is thus carried away and a fine dry powder falls, which may be swept out. This product amalgamates perfectly with water, the fluid tasting like fresh milk and having exactly the appearance of the natural emulsion. Moreover, it still shows enzymic activity, the albumins are uncoagulated, the fat is not separated, and caseinogen is still present in unaltered form. But by whatever process dried milk powders are made one great trouble arises: sooner or later the fat deteriorates, becoming partially rancid, and giving the product a repulsive flavour and smell. Even skim milk, retaining as it invariably does a small proportion of fat, deteriorates in the same way sufficiently to make it distasteful after a time. If this problem could be solved there would be no longer any reason for employing fluid milk at all and an enormous economy of valuable food material would be gained. We could then, so to speak, keep the cow in the larder to be drawn upon exactly as domestic necessity arises. The resulting revolution in the supply and distribution of milk would bring substantial gain to the community on many counts.—The *Lancet*, April 7, 1917.

The Diet of the Brain-worker.

The amount of fuel required in the economy of the man whose employment entails bodily exercise in greater or less degree has been fully discussed during the last few months, but the brain-worker still remains in doubt as to the minimum intake of food which he requires. The text-books have so far contented themselves with pointing out that brain-work, of whatever grade of intensity, is associated with a scarcely measurable increase in metabolism. Professor W. M. Bayliss, in a course of lectures delivered last autumn at University College, London, and now forming the basis of a useful little manual, comes to the rescue of the brain-worker and suggests that there is another consideration besides the actual quantity of energy developed by mental activity which should be taken into account. The oxygen consumed by any organ is an index of the food required by that organ. Experimental results prove that, although the actual consumption of oxygen in the nerve centres is not great, it has to be supplied at a high pressure. This is shown by the fact that even momentary stoppage of the food-supply causes immediate unconsciousness, although the oxygen of the blood still remaining in the brain cannot have been exhausted. Professor Bayliss suggests the analogy of an electro-magnet wound with thin wire which does not need much current to actuate it, but which, owing to the high resistance of the wire, requires a high voltage to drive the current through. It is, at any rate, possible that efficient mental work may require food to be presented at high pressure, and that a brain-worker should take a diet of energy value equivalent to that of moderate muscular work. The question deserves further consideration.—The *Lancet*, March 10, 1917.

The Cultivation of Medicinal Plants in India.

At the last sitting of the Calcutta session of the Industries Commission, Major A. T. Gage, I M.S., Director of the Botanical Survey of India, gave expert evidence concerning the working of his department and the correlation of its activities with those of the economic botanists in the Forest and Agricultural Department. He said that given the necessary staff and eqnipment it should be quite feasible to undertake the systematic cultivation in India of any or all of the species of drug-yielding plants and also the improvement of their quality. So far as he was aware no organised attempt had yet been made to discover what drugs were in demand in India and could be cultivated with advantage. At present there were 3000 acres actally under cinchona plantation in Bengal, and he saw great possibilities for an organisation devoted to the proper development of medicinal plants in India.—The *Lancet*, March 10, 1917.

Gleanings from Contemporary Literature.

QUO VADIMUS?*

The Trend of Medicine and of Homœpathy.

BY JOHN PRENTICE RAND, M D., Worcester, Mass.

I have been asked to say a few words to you upon the trend of medical thought and practice, as it appears to me to-day, and especially upon the trend of that branch or school of medicine which this Society represents. It may be a coincidence or simply my conceit, but it seems to me that the thirty-six years just past that marks the time since I began to learn the anatomical difference between the *os calcis* and the *os uteri* has produced a most remarkable change in the attitude of the medical profession toward itself and toward all the varied interest it represents.

The old medicology like the old theology was essentially a human, or inhuman document. It had no faith in God or Nature in the great plan of physical salvation. As some one has well said of the old theology: "Our fathers believe in total depravity and practiced it." It is interesting, almost pathetic, to note the old-time assurance of the medical profession in regard to the treatment of disease. I do not refer to the old "Brunonian doctrine" of the 18th century with its "sthenic" and "asthenic" pathology and its "depleting" and "stimulating" methods of treatment, the carrying out of which is said to have caused the death of more people than the French Revolution and the wars of Napoleon combined. Physicians had the courage of their convictions in those days and the patients suffered accordingly. But our own physicians of forty years ago were almost as bad. We satirize the Kaiser for his "Me und Gott" attiitude towards his dependents but the assurance and egoism of our doctor of the old school, or even of our old fashioned homœpathic physician were little less. Who ever heard of a patient dying a "natural death" without medication in the "brave days of old?"

But we are gradually losing confidence in the remedial action of drugs and relying more and more upon general sanitation and other forms of treatment; and the State is gradually assuming the function of guardian, conservator and medical attendant of us all.

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*Presented at the Boston District of the Massachusetts Homœopathic Medical Society, Feb. 1, 1917.

Whither are we going? Let us see! Among the comparatively recent acts of authority assumed by the State was the organization of the Board of Registration in Medicine in July 1894. Previous to that date there were no legal restrictions to the practice of medicine in Massachusetts. Anybody who had the nerve to make the attempt was free to do so and quacks of all denominations filled the State. It is true that the graduate physician had a certain medical prestige among the better classes, but this did not prevent the horde of non-graduates from reaping a bountiful harvest. The traditions and current belief of the people all turned towards internal drug medication in some form or another. The saner and better class patronized reputable physicians and everybody felt he must be taking something, as a sort of "spring house cleaning" at least, and the drug stores and patent-medicine vendors came in for a full share of the profit. But conditions have changed; the Pure Food Law has taken the mysterious element of secrecy out of the quack nostrum, and the popular magazine writer has exploited the futility of drugs in general to such an extent that the ordinary layman when he is ill can hardly decide whether to call a physician or take a bath, and often recovers with neither.

Our State Board of Registration in Medicine was organized ostensibly for the purpose of protecting the people from ignorant and unscrupulous practitioners, but certain ones who have been disturbed by it will never give up the belief that it was in reality an adroit move upon the part of the dominant school to gain complete control over the practice of medicine.

It would have been impossible at that time, as indeed it would be now, to get such an enactment through the Legislature without some recognition of the minority schools of medicine and so this law was framed to include representatives of the Homœopathic and Eclectic Societies. Previous to January 1895 any graduate physician could register for a nominal fee, and any non-graduate who had been continuously in practice for three years in the State was also allowed to register but under a separate class. Since 1895 all persons or physicians who have desired to practice medicine in the Commonwealth have been obliged to pass a satisfactory examination before the State Board of Medical Examiners.

I am not criticizing the value or necessity of the Registration Act. It was an awkward piece of legislation and an attempt to remedy an evil condition at the wrong end. To charter a medical college for the education of students and give it authority to confer a medical diploma that carries with it no legal right to use that education, is one of the paradoxes of our modern legislation. To grant a man and woman the right to marry and then brand their children as illegitimate would not be more absurd. The State says in substance to the graduate of its chartered medical college: "You don't know enough to practice medicine and you shall not even make the attempt until you have passed another examination to the satisfaction of the State Board." In like manner the State says to all of its people, educated and ignorant alike: "You don't know enough to select a medical attendant. I will attend to that business for you. If you want to be rubbed or prayed for you can have a certain degree of option but if you want to take physic you have got to bow to the State's anointed."

We used to think of America as "The land of the free and the home of the brave" and Patrick Henry made a great hit with his "Liberty or Death" proposition, but now the average citizen is so tied up with legal restrictions that he can't go down town without danger of being "pulled in." He can't drive a hack without a license, he can't peddle milk or collect swill. These last two restrictions may not disturb us greatly as physicians unless some of us should get enough money together to buy a few acres of land outside and then set out to teach the hard-headed farmers how to make money by running a sanitary pig-pen or selling certified milk.

We have legislated ourselves into solitary confinement so far as a change of location into another state is concerned, by the passage of laws for the "protection of the people" though Dr. Perkins has suggested a modified form of reciprocity to the New England Federation of Examining and Licensing Boards by the adoption of uniform questions, uniform ratings and uniform percentages by all of the Boards that have their examination at the same date. The suggestion is an excellent one but I fear it may disturb the remains of the late eminent Secretary of our State Board who decried all forms of reciprocity, and exultingly said: "Massachusetts has its own way of doing things." And what was that way? For a score of years until May, 1915, it put all candidates for medical licensure upon an absolute level. Anybody who could rake up the required fee was allowed to take the State Examination. The graduate of Harvard or Boston University had no preference over the man who never saw a medical college, and the State had and still has the arrogance to assume that the seven men appointed by the Governor are better qualified to determine the fitness of a candidate for the practice of medicine in three days than is the medical college that has had him under the closest observation for four years.

It may be an ungracious thing to suggest but I do not believe that the average member of our State Board of Registration would care to take the examination of his fellows, or attempt to answer his own list of questions six months from date.

Following the lead of the verious states that have attempted to decree who should and who should not practice medicine, come the organized representatives of great wealth and influence like the Carnegie Foundation and the Council of the A.M.A. which have essayed to determine for the future not merely who should practice medicine but who should teach it, and who should be even allowed to commence the study of it. Through an elaborate system of medical inspection they have forced scores of medical colleges out of existence (in 1907 there were 161 colleges, in 1912 only 116) and raised the entrance requirements of the others so high that a man, without an academic degree or two years of academic college work, is not allowed to matriculate at all. Take our Homœopathic Colleges for instance; I said a moment ago that I did not believe the average member of our State Boards of Registration would care to take his own examination six months from date. How many of our college professors and instructors could turn around and gain admission as a medical student into their own colleges today? Possibly one in four; and yet every one of these men has been successful in practice and in the building up of a medical school, from which today, for lack of preliminary training, he would be barred out. The old query of Nicodemus confronts us here:—"How can a physician be born again when he is old? Can he enter the second time into his Alma Mater's womb and be born?" I am not decrying the advantages of a liberal education, but I truly deplore any act that would turn our medical colleges into a sort of a rich man's guild into which none but the favored few can enter.

Following close in the wake of Medical Registration came another act of paternalism, *viz.*, the medical inspection of our public schools throughout the State. If our school population sprang from old New England stock there would be little need for such supervision; in fact I think that the average New Englander who is fortunate enough to have children to attend school feels that this custom of school inspection is a sort of impertinence upon the part of the State, and only submits to it for the sake of the "great unwashed," who have no intelligent oversight at home. Even the ignorant foreigner, accustomed to all sorts of tyrannical oppression sometimes resents this procedure as an infringement upon his political rights. But, as laws are made for the greatest good of the greatest number, we accept this jurisdiction for the sake of the bright little children of foreign parentage who some day may be our main, perhaps our only, support.

Closely allied to this subject of the medical inspection of our school is the old old story of compulsory vaccination and police regulation for the prevention and control of contagious disease. I will not dwell upon the question here of the State's undoubted right to enforce vaccination as a preventive of small pox. Personally I believe in the efficacy of it, but if I did not I should most seriously object to the procedure being enforced by law. At present a physician's certificate will exempt a child of school age from vaccination which leaves a loophole through which the "Antis" may escape. But this straw has been threshed over in our State legislature every year for a long time and the end is not yet.

A more acceptable form of paternalism, though less effective, is the assistance which the State is trying to give its great army of tuberculous patients. What has brought this about would be very hard to tell, but it has come. Previous to 1898, when the State Sanatorium was established at Rutland, Massachusetts had never taken any active interest in the prevention or cure of consumption. In fact nobody believed that consumption was curable, and when some enthusiastic young doctor claimed to have succeeded in doing so, all the wiseacres shook their heads in a knowing way and declared that the so-called cure was simply a mistake in the diagnosis.

For a long time Massachusetts had maintained hospitals for surgical cases and various forms of curable disease. As a matter of public safety she had built asylums for the insane, but the poor consumptive had no place to go except the public almshouse and even there he was not welcome.

How changed are the conditions of today! Today Massachusetts has four great sanatoria, reserved especially for the incipient and hopeful cases of the disease, Rutland, 390 beds; Lakeville, 225 beds; North Reading, 225 beds; Westfield, 225 beds; total, 1065 beds, all for curable cases. Eech of these four sanatoria maintains an outpatient department at which suitable patients may be examined and receive advice free of charge. In addition to these there has been established in every city or town of 10,000 inhabitants or over, throughout the State, a tuberculosis clinic maintained by the local board of health and under the general supervision of the State Department of Health.

The State is also trying to look after the patients discharged from its four sanatoria and has in its employ a special agent whose duty it is to visit them at their homes, report upon their condition and give them needful advice.

As a result of State legislation and an awakened public interest we have the following twenty-seven municipal and private incorporated tuberculosis hospitals:

	Beds
Boston Consumptives' Hospital,	404
Boston Infirmary Department,	55
St. Monica's Home, Roxbury,	20
Channing Home, Longwood,	17
Cullis Consumptives, Home,	40
Free Home for Consumptives,	110
The House of the Good Samaritan,	28
Brookline,	16
Cambridge Tuberculosis Hospital,	88
Holy Ghost Hospital,	34
Chicopee,	20
Clinton,	21
Everett,	24
Fall River,	56
Fitchburg,	29
Haverhill,	24
Holyoke,	30
Lawrence,	88
Lynn,	60
New Bedford,	95
Northampton,	40
Pittsfield,	21
Salem,	18
Somerville,	18
Springfield,	26
Waltham,	17
Worcester,	55
Total,	1,454

If to this summrry we add 1065 beds belonging to our four great sanatoria, we have as a result 2519 beds available for the use of our tuberculous population. And this does not include the private sanatoria of Dr. Bowditch at Sharon and Dr. Lapham at Rutland which are doing most excellent work. Nor does it include the great $100,000 Community Health and Tuberculosis Demonstration, contributed by the Metropolitan Life Insurance Co., at Framingham.

These figures show most conclusively what the State has done and is trying to do to aid the people in their struggle against tuberculosis. The cause has been advanced much faster from the social and political standpoint than from a medical and scientific one. Dr. Edward R. Baldwin, President of the National Society for the Study and Prevention of Tuberculosis, said only last winter:—"We have not made any really valuable advance in the last twenty years or more, but are pursuing the same routine. Many little points have been improved, but the fundamentals have not been changed and may never be changed." Speaking of "Artificial Pneumothorax" as a remedy for certain forms of the disease, Dr. Baldwin said: "I think an experience of five years will be necessary before I shall be willing to commit myself from a conservative standpoint."

But the public is being educated even if the profession has nothing new to offer: In 1915, 80,000, 000 Red Cross Christmas Seals were sold, and last year 300,000,000 were printed for that purpose. Each seal was a reminder to somebody of the work that is being done. Already the Federal Government is being asked to take a hand in the matter of transporting indigent patients and assisting the individual states in taking care of them. And thus the work goes on. Paternalism? Yes, but of a more acceptable type than some others which we have in mind, and should our tuberculous sanatoria be reduced to the level of twenty years ago I am sure that both the profession and laity would feel they had met with a great loss.

We came now to another instance of paternalism on the part of the State of more recent origin. The Workmen's Compensation Act, the object of which is to provide industrial accident insurance to every operative employee throughout the State. The law has hardly been in effect five years but the results have been so satisfactory to the great army of union voters that it is not likely to be repealed. Growing out of this law has arisen our Industrial Accident Board to adjust any differences that may arise between the Insurance Companies and the parties insured. This Board is endowed with great authority and from its irulings it is dfficult to escape. Thus far it has been optional with a manufacturer to protect himself with accident insurance or not, but certain amendments are proposed by the Industrial Accident Board to be acted upon by our present Legislature which, if passed, will make it compulsory for all emplyers to be thus insured. Other amendments propose that questions of arbitration be heard and adjusted by a *single* member of the Board, and that a sum of $100 for funeral expenses be allowed the dependents of an employee who is fatally injured; and petitions prepared by Dr. Samuel B. Woodward, President of the Massachusetts Medical Society are being circulated for an amendment to allow any employee the right to select his own physician. Thus is the authority of the State coming more and more in evidence every year.

I am not questioning the value of Industrial Insurance for the laboring man. It is a sort of an official weapon that cuts both ways. It provides the employee a partial compensation for injuries received by accident, and it makes the employer or corporation much more alert to prevent accidents. It is really father of the "Safety First" movement about which we read so much. It has also promoted the cause of total abstinence among the labouring classes. A drinking man is not a safe proposition for railroad or mannfacturer to employ, and so the total abstainer is given the preference when he is looking for work. Some corporations will not hire a drinking man at all. Thus is the poor laborer's inherent right to eat or drink what he pleases being interfered with under the beneficent action of law.

I shall not dwell upon the matter of Industrial Insurance and I have only alluded to it for the sake of calling your attention to a new and much more radical example of paternalism that is coming up for action in our State Legislature this winter. I refer to the subject of Compulsory Health Insurance, which was so earnestly advocated by Governor McCall in his inaugural message this year. The Governor went still farther in his proposition to benefit the afflicted poor and advocated pensions of not more than $200, each, for any old person of 70 years, without means and who has no relative to support him.

It is fitting that this matter of health insurance should come up early in Massachusetts, for it was at the annual meeting of the Americal Association for Labor Legislation held right here in Boston in 1912 that it was first proposed and a committee was appointed to investigate the subject.

The whole subject has been brought before the Legislature this year by petition of Micheal M. Davis, Jr., of Boston, and the bill prepared for the purpose is known as House number 1074, introduced by Representative Benjamin Loring Young, of Weston. The principle features of the bill call for *compulsory* health insurance for every regular employee whose wage or salary is not *over* $100 per month. The expense of this insurance is to be divided between the State, the Employer and the Employee insured, the State playing 1/5 and the Employer and the Employee each plying 2/5 of the amount. In return for this the employee has his doctor's and urgent dentist's bills for himself and depenpent members of this family paid togethor with additional expense for medical and surgical supplies, this last item being limited to $50 for any single year. If his illness requires hospital treatment, in the judgment of his medical attendant, the company settles the bills and pays the family of the insured one-half of his regular wages; the same rule obtains if he declines to go to a hospital. Sick benefits are allowed for a period of 26 weeks only in a year and funeral benefits are limited to $100.

The proposition of Health Insurance, as presented by John B. Andrews, Ph. D., of New York, Secretary of the American Association for labor Legislation, seems almost Utopian in its scope.

We are told by him that Germany adopted health insurance in 1883 and that the average duration of life in that country from 1870-1900, had increased 10.7 years for males and 12.4 for females.

England adopted the system in 1911, and within two years after its initiation, she had 105 tuberculosis officers appointed and 3000 beds under construction for tuberculous patients; 150 new dispensaries were opened and 1000 shelters for out-of-door sleeping had become available. During the initial 18 months 48,000 insured tuberculous persons received gratuitous treatment. In addition to the above, Norway, Roumania, Russia, Serbia, and the Netherlands have adopted health insurance since 1909, while Austria, Luxemburg and Hungary had passed compulsory laws previous to that date. In this country tentative bills for health insurance were introduced last year in New York, New Jersey and Massachusetts and this year similar bills will be introduced into Wisconsin, Illinois and Ohio. In a study of 31,481 charity cases by the U. S. Immigration Commission for 1909, it was found that accidents were a factor in 3.8 per cent. of the total number, and sickness in 38.3 per cent. While dependency caused by disability of the breadwinner was six and one-half times greater from sickness than it was from accident, "yet the State requires insurance against industrial accident but not against sickness —the more urgent need."

Dr. Andrews argues further, that the slender savings of working men are inadequate to meet the burden of sickness, and until some means is found to prevent sickness and distribute its cost, the scourge will continue to produce "destitution, dependency, inefficiency, waste and death."

As a sop to the medical profession of Massachusetts, to whom this Health Insurance bill was unsatisfactory last year, provision has been made so that all physicians and surgeons legally qualified to practice in the State will be eligible for a "panel" from which the patient will have the privilege of selecting his attendant. Local "Carrier" funds may employ salaried physicians but they must also maintain the "panel."

The interests of the physicians are further protected by a Medical Advisory Board of 11 members in which the 2 principal schools of practice shall have representation. The whole system will be further supervised by a State Commission consisting of five members (one of whom shall be a physician) who shall devote their entire time to the work.

I have not time to speak further of the legislation proposed by Dr. Andrews. Those interested should read his article on Health Insurance, published in the annual Report for 1916, of the National Association for the Study and Prevention of Tuberculosis or send to him, at 131 East 23rd. St., New York, for further information on the subject.

Whether we like it or not there is no question whither we are drifting in the matter of industrial insurance. Soon we shall have the "old age pensions" to deal with and then, perhaps, be confronted with compulsory insurance against the emergency of "nothing to do," which may come in mighty handy for the general practitioner in the near future.

But seriously, are we ready to accept all this oversight and dictation upon the part of the State? Suppose Germany has lengthened the lives of her vassals for a few years in anticipation of future slaughter? Are we ready to give up our Western freedom for the political slavery of continental Europe? Shall the poor immigrant who comes to this country, to escape from tyrannical oppression and to provide for his family like a man, be throttled with compulsory health insurance because he cannot earn $1200 in a single year? Is it fair? Is it democratic, to take one twenty fifth of a poor man's wages, as a guarantee against his becoming a public charge and allow his neighbor who is fortunate enough to command ten cents a day more to escape? To treat an adult like an infant is the surest way to keep him so and too much oversight and coddling is bound to breed helplessness and inefficiency in the end. We want neither. There is a difference between civic and military ideals. Germany has been an "Armed Camp" for forty years. She has organized and standardized her population until each citizen has become but a part of a great military machine. Efficient? Yes, for military purposes, but what has been the cost? She has smothered the spirit of original thinking that has made America the proudest nation upon the face of the whole earth; not one of the great inventions that have revolutionized society originated in Germany; are we ready to follow her lead in social economics and subjugate the spirit of independence that belong to our laboring classes, even for the sake of improving their physical health?

Should this proposed Health Legislation pass, the future bard who essays to write an "Ode to Honest Poverty" unless his hero is capable of commanding more than $100 per month, will have to say:

"HE'S BUT A '*ward*' FOR A' THAT!"

We come now to another phase of our subject, and one of most vital interest to us as homœopathic physicians, and ask ourselves, whither we are going as a distinct school of medicine? Has our school performed its mission as others have done before? Is it about to lose its identity in the great onward march of medical progress?

Before attempting any direct reply to these queries let us note a few facts in regard to the practice of medicine in general, that are evident to us all.

(1) The dominant School of medicine is not so "dominant" as it used to be, and is now ready to concede that its old time practice, with heroic doses of medicine, was absolutely injurious to the patient. This change of attitude has not been brought about by any faith in *our* law of therapeutics or even in our methods of practice, unless it be the fact that they have seen serious cases recover with very little medicine, but it is due rather to a lack of faith in all forms of internal medication. As Dr. Richard Cabot so cogently said a few years ago: "There are only four diseases that we can cure!" This feeling of helplessness at the bedside has made them more tolerant toward milder forms of treatment and toward the man who uses them. As a very courteous old school physician said to me regarding a case of rheumatic fever. "The thing has got to have its run any

way; your medicines won't harm the patient, while ours will, so I should advise to keep right on as you have been doing." He treated me with the utmost consideration and left me free to continue in charge of the case.

(2) On the other hand we have grown less dogmatic in our therapeutic beliefs and consequently much easier to get along with. These little acts of courtesy between individual members of opposing ranks spoil the oldtime militant spirit and render a fight impossible. But it was not always thus. Thirty-four years ago the American Medical Association not only forbade its member to consult with hemœopaths but even refused to recognise the delegates of the New York State Society because that Society allowed such consultations. The New York Society was the first to take a stand for medical tolerance and for a period of twenty years, until 1903, was debarred from affiliation with the national society on that account. It was not until 1912 that the American Medical Association really revised its constitution which was adopted at its organization in 1848, and allowed its members freedom in practice.

In 1873 the Massachusetts Medical Society expelled eight of its members for practicing homœopathy, and thirty-five years later, in 1908, invited the same offenders back again.

This change of attitude of the "dominant school" towards us has been a most difficult problem to meet. Recent graduates of neither school have any real conception of the professional indignities that everywhere obtained a generation ago. They meet in a most fraternal manner and can see no sense or reason in keeping up the old sectarian spirit. The old Trojans however are more conservative; they suspect the "Wooden Horse" tactics of the Greeks and are not ready to tear down their walls and open up their city.

But human nature in all ages is essentially the same. The great generals behind the American Medical Association know what they are after, and time has taught them the best way to get it. Their hopes are to some extent being realized: It is said, by men high in authority, that there are more homœopathic graduates affiliated with the American Medical Association than with the American Institute of Homœopathy and right here in Boston there are more than a score of homœopathic physicins who have joined the Massachusetts Medical Society. What does this mean? You say it is simply an act of professional receiprocity and has no significance regarding the future of our school. Perhaps that is so, but it seems to work in only one direction, at any rate I fail to notice any corresponding increase in our membership from the ranks of the dominant school. We have been instructed and entertained many times by members of the Massachusetts Medical Society how many of our members have been invited to address them? I am making no complaint that some of our members have seen fit to join the societies of the dominant school. Every man for himself these days! For years we have been the best customers of old school-text books that the publishers have had, but what is going to be the effects upon our homœopathic organizations when a *majority* of our physicians are linked up with the dominant school? Already we are finding it harder and harder to keep up the attendance in our State and District Societies! Not from lack of members, in our State Society at least. Our membership now is nominally much greater than it was twenty years ago but there is a distinct lack of interest in all of our medical societies that is painfully apparent. The only part of our State Society program that really attracts an audience is the free dinner with some popular entertainer to follow.

Now I am not here to find fault with anybody or give advice, but the conditions I have described are not encouraging to a lover of our homœopathic institutions, and, as our Cereal Coffee friends say, "There's a reason" for it somewhere.

What is the matter with our medical societies? Have we grown too wise or too indolent to attend? I will tell you one thing I think is the matter, we have lost the faith our fathers had in the curative action of drugs. Faith in drugs is as essential for the study of materia medica as faith in the immortality of the soul is for the study of theology. Anything that weakens our faith in drugs as a therapeutic agent, and as homœopathic physicians, anything that weakens our faith in our homœopathic materia medica is blighting our enthusiasm and efficiency and threatening the perpetuity of our school. All of our timehonored institutions were built up upon faith in homœopathic therapeutics, and without that faith there is no sufficient reason for keeping what we have or building any more.

And what has disturbed our faith? There are several disturbing factors. One of them, I believe, is our slovenly method of prescribing. We do not use the single remedy as uniformly as we should. Ignorance and laziness go together. A patient has symptoms that seem to call for several remedies. We are not quite sure which and so we prescribe two drugs in alternation (some physicians do this so regularly that they have "alternately" printed on their office labels), or what is still worse use one of those insidious "combination tablets." The patient recovers or dies in the course of time but the physician doesn't know what killed him or hastened his recovery. He has learned nothing from his successes or failures and had entered into the dismal slough of polypharmacy.

The majority of us, I fear, are sadly inconsistent in this matter of using the single remedy. We deplore the practice of the dominant school on this account. But "the pot should not call the kettle black." The old school deserves all the anathemas it gets for its inaccurate methods, but what about ourselves? I have on my desk catalogs of "combination tablets" put out by Halsey Bros. of Chicago and Buffington Pharmacy Co. of Worcester, and find that the former manufactures 132, and the latter 228, combination tablets, each of which contains two or more ingredients, for the use of the lazy practitioner. All our other homœpathic pharmacies are doing the same thing. They are making these tablets to sell. If they couldn't sell them they wouldn't make them, and the old school physicians are not the only ones who are buying them either.

The putting out of "combination tablets" creates a depraved habit that grows by what it feeds on, and the physicians rather than the druggists are to blame. The druggists cater to the frailties of the profession as the yellow newspaper does to the public. It is simply a matter of busines with them. What does the travelling agent of our homœopathic pharmacies show you when he comes into your office? Not his elegant line of tinctures and triturate tablets containing a single ingredient but he wants to call your attention to this or that "combination table" as almost a specific for this, that or the other disease. He then says: "You know Dr. Blank of Boston, or some other old town? I tell you he has a tremendous business! One can hardly get into his office at all! Well he buys this or that 'combination table' in 10,000 lots! And he gets results. Results are what you are after!" You sawllow the bait, give him a trial order and from that day your destiny is sealed. The mongrel prescriber never knows a drug accurately and sooner or latter loses both faith and enthusiasm in his work. How many of us have ever attempted seriously to test or prove a drug upon ourselves? (The late Conrad Wesselhoeft used to tell his students that drug proving was the duty of every homœopathic physician.) And when a drug has been tested, and tested properly, how many of us have studied the results sufficiently to use or profit by them? To be more explicit: How many of us can tell the difference between the pathogenesis of

Belladonna, that was worked out so carefully, a few years ago, by Dr. Bellows and his collaborators and the other symptomatology as given in our text-books? Perhaps those who conducted the provings can, but how many others? I will not press the question for the sake of publishing the result. And that is only one drug; what of the hundred others in daily use? We say our provings are faulty; why don't we correct them? We have voted money for the purpose and something is being done on that line at Ann Arbor and Ohio University, but the results are comparatively insignificant.

It is mighty discouraging business to test drugs for the use of the homœopathic profession unless the profession will follow the experiments and utilize the results, and that is just what nobody seems inclined to do. *Quo vadimus?* We are drifting away from the homœopathic ideals of a generation ago. We may have followed our fathers in some particulars We have fought a good fight, but we haven't kept the "faith" as they kept it and the stumbling block of polypharmacy is partly to blame.

Another element disturbing to our faith, at the present time, is the result of certain scientific investigation which have been carried on under the auspices of the Evans Memorial which prove, or seems to prove, the uselessness of some of our best known drugs as remedies for disease. I will not raise the question here of the character of these experiments or whether the physicians who are carrying them on have the proper attitude towards the tenets of the fathers to do it rightly. When we start in on a scientific investigation we ought to welcome the truth however disagreeable we may find it.

> "No man, having put his hand to the plough, and looking back, it fit for the kingdom of God."

And yet it is not a pleasant experience to be told that you have been hugging a delusion all of your professional life in the supposed efficacy of certain medicinal plants or chemicals; that you have been giving your patients placeboes when you thought you were giving them medicine; that you have been fooling your patients and yourself at the same time; and when your informer backs up his assertions with scientific data and proves, as conclusively as scientific experiment can prove, that he is right and that you have been mistaken it makes one feel not simply poor, but bankrupt.

The results of these experiments may not influence the older physicians in their work, any more than the theory of evolution did the clergy of forty years ago, but there is no doubt of their influence upon the younger physicians and especially upon the undergraduate students. To have it demonstrated, that Belladonna for instance has no influence, either as a preventive of cure for scarlet fever, throws a shadow of suspicion over the whole of our materia medica. The undergraduate may cram certain portions of it for the sake of passing the subject but it will be only a cram, to be forgotten as soon as his examinations are over. He has not even tried to retain it for the State Board, for, incredible as it may seem, the State, previous to March, 1916. asked no questions in materia medica and what is the sense of learning a lot of symptomatology if the drugs themselves have no influence in disease? We move in the line of least resistance. "It is better not to know so much than to know a lot that isn't so"—and a great deal easier.

Lastly, we are drifting nearer and nearer to the "fusing point" of medical affiliation through the influence of our various specialties in every department of medicine. The fundamental elements successful in every specialty, are the same: good judgment, mechanical dexterity, and careful antisepsis are common to them all. The man who combines these three with a pleasing personality feels little need for internal medication. The American College of Surgeons to which homœopathic surgeons have been made eligible, while building up a great monopoly of surgical skill, is also forming a great neutral camp, or clearing house, for the exchange of surgical ideas.

Every new remedy or expedient that is appropriated and used by opposing schools is bringing them nearer together, (antitoxin, tuberculin, salvasan, and scores of germicides and vaccines put up for various forms of infection,) and every oldtime remedy discarded is having the same effect.

Our homœopathic institutions too are gradually losing their sectarian standing. The Hahnemann Medical College of San Francisco through the efforts of my friend, Dr. James W. Ward has surrendered its charter and become a part of the University of California Medical School. In another year the amalgamation will be complete. In like manner the homœopathic Medical Colleges of Cleveland and Cincinnati have been merged into the Ohio State University, at Columbus. For years, homœopathic instruction in New England. Michigan and Iowa has been under the jurisdiction of great universities. May the time soon come when all of our Medical Colleges will be thus sheltered and preserved!

Whither are we drifting? We are drifting from a democratic to a centralized form of government. All of our State institutions are being mobilized under separate heads. We have a Commissioner of Health who is given almost military authority. Our various insane hospitals are under one Board Westborough State Hospital is no longer allowed to be called a homœohathic institution and three of its seven Trustees are not homœopaths at all. In the beginning of this paper I alluded to the various forms of paternal authority that are being assumed by the State. Please do not understand me as trying to criticise these movements or oppose them in any way. Most of them are undoubtedly necessary. The congested population of a great city can never enjoy the comparative freedom of a rural district, but the legislative enactments, to which I have referred show the direction in which we are going. The centralization of political authority means the gradual assumption of medical authority and the centralization of medical authority, under a single cabinet official or military head, threatens the rights, if not the very existance, of the minority schools of medicine. But what are we going to do about it? "Eternal vigilance is the price of success." We have nothing to fear in regard to the great truths of homœopathy but we need an old fashioned revival to make them effective. All of our professional "friends" go into politics and secure such legislation as they desire and we must do the same if we wish to succeed. We must take a broader view of our fraternal obligations and be ready to sacrifice both time and money for the common good. We must stand by our State and National Societies in whatever they undertake. We must support our homœopathic journals and help them in every way we can. And we in New England must not forget the debt we owe to Boston University School of Medicine and the great honor her graduates conferred upon us before the State Board of Registration last year. Fourteen condidates passed, without a failure, with an average of 77.5 per cent. That is a record to be proud of even if we are a "minority" school of medicine. And there is need for Minorities yet!—Is Boston University School of medicine worth saving as a homœopathic institution? Then stand by the principle it was organized to defend!—The *New England Medical Gezatte,* March, 1917.

The Homœopathic World, May, 1917, London.

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Peoples opinion.

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THE "NATRUMS."*

BY ELMER SCHWARTZ, M. D., Chicago, Ill.

NATRUM ARSENICUM.

The group of remedies we shall discuss will be *Natrum arsenicum*, *Natrum carbonicum*, *Natrum muriaticum*, *Natrum phosphoricum*, and *Natrum sulphuricum*. The first three somewhat resemble each other in their generalities, which we will notice later.

The first one we shall discuss will be *Natrum arsenicum*, which from its combination of elements, should be of great value in our materia medica. We all know that its general characteristics will resemble in a measure the nature of the elements in combination.

We all know the nervousness, the excitability and sensitiveness of *Sodium*, and we also know of the extreme restlessness, anxiety and fear of *Arsenicum*, but in this remedy we shall have to differentiate quite closely to be able to bring out the characteristic generalities, which will enable us to prescribe it.

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*Read before the Regular Homœopathic Medical Society.

These patients are extremely sensitive to cold and the cold open air, yet the warm open air gives relief, even to the mental distress. They have a tendency to take cold and are affected by the cold wet weather.

A strong feature is the anæmia and weakness associated with dropsy of the extremities; therefore, they are distressed on ascending stairs or from exertion.

Eating causes an aggravation generally, and such things eaten as butter, cold foods, fats, fruits, milk and pork make them feel worse.

As we find in the *Natrum* there is marked physical irritability and weakness, there is a desire to lie down, although this often makes the patient feel worse, still, on the other hand, some symptoms are made worse from motion. With this desire to lie down there seems to be a strong aversion to motion.

The *Nat. arsenicum* patient is over-sensitive, both internally and externally, being sensitive, as for instance, from a thunder storm; has electric shocks going through the body.

The mental distress is relieved while walking in the open air, but the physical conditions are made worse; thus, for this reason we see that he wants either to sit or lie down, for his aversion to motion is no doubt due to his being made worse on motion.

Patients whose symptoms call for this remedy have their good dispositions so disturbed that they anger at trifling things, and become furious when contradicted, and it is after these fits of anger that he becomes worse.

As 'was said before his concentration of mind is better in the open air and more difficult while in the house. He is so disturbed mentally that he is over-conscientious about trifles; becomes discontented and discouraged, and at times way down in the depths of despair. Although there is dullness of mind and mental exertion makes him feel worse he is very easily excited.

There is a great deal of fear entering into the symptoms of this remedy, such as fear in the evening on going to bed, or when in a crowd; he has a fear of some impending disease, or of some evil that may happen to him. As we see the *Natrum ars.* individual is easily frightened and is constantly in a hurried anxious state.

At times with women the mind is very active and ideas abundant, but more frequently there is irritability, impatience and indifference. An aversion to most everything in life with loathing of life.

She becomes quarrelsome, is restless, especially at nights, toss ing with anxious restlessness.

As to the other *Natrums* there is sensitiveness to noise, being easily startled.

Natrum ars. is a very deep acting remedy, but it also is a very difficult remedy to study, as it seems to affect every tissue in the body, and in many forms. To understand it is to prescribe it when indicated.

NATRUM CARBONICUM.

The *Natrum carbonicum* patient is unable to resist either the cold or the heat; he is sensitive to the cold and heat, is chilly and aggravated by the least draft, and requires much clothing when the weather is cold: yet in the heat of summer and when exposed to the sun's rays he is nearly prostrated, becomes weak and languid.

They are aggravated by weather changes causing their digestive, rheumatic and gouty troubles to become accentuated.

Like its sister remedies *Nat. ars.* and *Nat. mur.*, it shows a nervous tendency even to extremes, nervous excitement, palpitation and trembling associated with great prostration and nervous weakness. *Nat. carb.* is so sensitive to noise that the slamming of a door or rattling of paper causes palpitation and other nervous disturbance, such as melancholia and irritability.

Nat carb. often becomes estranged from family and friends, showing a very quarrelsome nature, even having an aversion to his own family, friends and acquaintances.

There is such a degree of sensitiveness that music causes weeping, melancholia, and sometimes thoughts of suicide. This is true in a measure with the *Natrum* family.

Another feature quite prominent with the *Nat. carb.* patient is his capacity for generating gas, and we find in those who are old dyspeptics frequent belching and a sour stomach.

Nervous exhaustion, physical exhaustion and weakness of mind and body are strong characteristics of the *Nat. carb.* individual.

A point well to remember is that this patient is better after eating, even becomes warm after eating as well as being relieved from his pains. His *all gone feeling* in the stomach, which causes hunger, comes on about an hour before meal times.

I have tried to steer clear of enumerating classified diseases, but mention the nervous tendencies, the eruptive characteristics which manifest themselves as vesicles or herps on the skin and mucous membranes, notably on the lips, hands, feet, fingers and toes.

NATRUM MURIATICUM.

Our next member of the *Natrum* family is *Natrum muriaticum.* Our texts picture this remedy as one whose skin is shiny, pale, waxy and looks as if greased, but my experience does not always verify this, for as we all know it is the strange, rare and peculiar symptoms relating to the whole patient that give the indications for the remedy. *Nat. mur.* patients are more or less emaciated, weak, nervous, prostrated and having a nervous irritability or a weeping mood.

Hysteria is a strong feature among women, weeping and laughing, even to prolonged spasmodic laughter, which is usually followed by tearfulness and sadness.

A *Natrum mur.* individual easily takes on grief and will even grieve over nothing. They love to recall unpleasant occurrences to grieve over them, and usually if consoled in their grief become angered.

Frequently headaches come with this melancholia, and at times walk the floors raging and cursing.

We think of *Ignatia* for the girl with unrequited love, but *Nat. mur.* has this characteristic and is the chronic of *Ign.* in cases of this kind.

The *Nat. mur.* patient is also an excitable individual and is disturbed by excitement and is extremely emotional; her whole nervous economy is in a state of uneasiness and irritability, noise, thunder, the slamming of a door and sometimes music disturb her very much.

It must be remembered that the *Natrum mur.* patient is greatly disturbed by excitement and is extremely emotional. Like its sister remedy, *Nat. carb.*, noise, the slamming of doors, or sudden noises, and sometimes music, cause distress of this highly sensitive organism. As for pains they are stitching, convulsive, jerking, twitching and shooting, entirely harmonizing with this over-sensitive, excitable, emotional and intense organism.

A strong characteristic is that complaints are worse while indoors, especially if the room is warm; the open air is the thing that gives relief. It is to be observed that *Natrum carb.* and *Nat. mur.* both have a general nervous tension, but one is a chilly patient and the other usually a warm blooded individual, but it must be remembered that both are much disturbed by being in a room filled with people.

The skin of the *Natrum mur.* patient usually looks waxy and dropsical; usually there is much emaciation; often the infant looks prematurely old. It is to be remembered that the emaciation of *Nat. mur.* takes place from above downward *(Lyc)*.

As to the discharge from the mucous membranes it is watery or thick and white; the skin throws out its vesicular and scaly eruptions.

When it comes to the tissues involved in a *Nat. mur.* case it should be remembered that all structures may be involved.

The pace of *Nat. mur.*, which is slow, should be kept in mind, especially when dealing with chronic complaints, as these complaints usually are a long time manifesting themselves.

Some good points that are well to keep in mind when considering *Nat. carb.* and *Nat. mur.* in chronic complaints are the extreme sensitiveness of both remedies to the extremes of temperature, both heat and cold; the extreme weakness that comes in both

Nat. carb. and *Nat. mur.* from the heat of summer, great susceptibility to the rays of the sun. The relief from eating in *Nat. carb.* usually associated with a great deal of gas and an aggravation from cold damp whether, should be kept in mind. If I remember correctly *Nat. mur.* is not disturbed by dampness.

NATRUM PHOSPHORICUM.

Natrum phosphoricum. brought out by Schuessler—"it is a remedy suitable in those individuals whose nerves are all upset from excessive mental exertion and sexual excesses. There is *marked anæmia* and *an aversion to the open air,* being agg. when in the open air, which is a strange thing; of course, there would be an aggravation from a draft of air and from cold, while there is a tendency to the frequent taking of a cold."

Weather changes disturb him and he really has an aversion to bathing. These patients have many symptoms coming on after coition, he may have been a sexual debauche. Like *Nat. carb.* there is a general amelioration after eating.

The muscles are flabby and there is loss of flesh, therefore, physical exertion naturally makes him feel worse. While he is generally better after eating, such things as butter, cold drinks, cold food, fats and sour things disturb him.

This individual at the beginning of his trouble has great physical irritability, but later there is a marked lack of reaction.

When the weather is hot he feels a lassitude in the morning, a constant desire to lie down, sometimes a prolonged weakness from loss of fluids.

Single parts become numb; there are orgasms of blood and stitching, tearing pains which are agg. during a thunder storm. Pulsation takes place all over the body accompanied with a sensation as though a shot was forced through the arteries.

There is a general sensitiveness also to pain. As with *Nat. carb.* and *Nat mur.* there is a general aggravation during a thunder storm, he trembles during a thunder storm.

Remember the nervous, and paralytic weakness that is worse in the morning and after exertion.

Nat. phos. individuals anger over trifles, and, like *Staph.*, have complaints from vexation; they are anxious at night while in bed and have a fear when having fever about the future and about his health.

Company he does not like because his concentration is weak and he becomes confused.

In his delusions, which are frightful, he thinks he sees the dead or hears footsteps.

Generally he is discontented, discouraged and easily distracted when he attempts to read he finds his mind is not up to par, and this mental exertion brings on many complaints.

We think of him as a very excitable fellow, who is afraid at night of different things that he imagines are going to happen to him. He fears bad news, is very easily frightened and heedless.

Always in a hurry, no one walks fast enough to suit him. Sometimes his ideas are abundant and at other times deficient and sluggish.

As his condition progresses he becomes indifferent to everybody, until he has a dread of either mental or physical work.

We look upon this poor individual as one with great prostration of mind; yet extremely sensitive to noise, music and to his surroundings.

He finally has spells of stupefaction, which creep over him; he does not want to talk for his thoughts wander; he is growing timid and bashful and weeps and seems to be approaching imbecility.

With what you have of these two elements, *Sodium* and *Phosphorus*, you may realize that it affects all tissues of the body and in various ways. The general characteristies are all that can be brought out that will enable the prescriber to select the remedy judiciously.

NATRUM SULPHURICUM.

It is left to *Natrum sulph.* to so disturb the mind and fill it with direful impulses to self-destruction, hatred and revenge so that the individual is unable to reason out his affections. He must reason with himself whether he is to allow himself to die, or to live. This condition so disturbs him that he spends sleepless nights because all through the day he has been fighting hard to resist the temptation to destroy himself; he thinks he wants to die, and yet he doesn't want to die.

As in all the *Natrums* every noise even the slightest, causes distress, such as the crumpling of paper or even the piano causes great uneasiness.

A heated room causes much distress, but if out in the cool air his unnatural impulses pass away. There is such sensitiveness that minor strains of music or mellow lights cause sadness as in *Nat. carb.*, *Nat. mur.*

The *Nat. sulph.* is generally worse in the morning with the heat; there is troublesome palpitation as in all the *Natrums*; all are worse lying on the left side.

Being a nervous remedy there are violent pains in the back of the neck and down the spine as in the sacrum.

Nat. sulph. should be remembered as one of the most prominent of the anti-sycotics, especially for inherited sycosis.

A strong feature of the remedy is its susceptibility to wet weather, therefore, it is useful (when indicated) for those patients who live near bodies of water and have been subjected to malarial influences. A remedy that belongs to the neuropathic and bilious constitution.

There is great sensitiveness to the night air *(Dulc)*, there being a universal catarrh generally with discharges. There is also sensitiveness to touch and pressure and an over-sensitiveness mentally and physically, being very sensitive to pain. The pains are very numerous, which are all better from motion, sometimes associated with a bruised feeling all over.

The *Nat. sulph.* individual has a strong desire for the open air, and is relieved while walking in the air; he is sensitive to a warm room, although there are some *Nat. sulph.* patients who are sensitive to cold and must be clothed warmly.

Spring seems to be a time of a general aggravation; also warm weather makes him feel worse.

With this nervous patient there is a general physical restlessness and anxiety often associated with marked weakness and trembling with pulsations and a rapid heart.

Nat. sulph. should be thought of in those patients who have received injuries to the head or spine; convulsions may result from injuries to the head.

Anxiety, which passed off after eating breakfast or at night, while in bed, or an anxiety and loathing of life with suicidal impulses are strong mental symptoms.

The *Natrum sulph.* individual is sad and irritable in the morning. There are many kinds of complaints and numerous pains associated with the *Nat. sulph.* constitution, for these we do not prescribe, but endeavor to grasp the totality of the characteristic symptoms regardless of classified diseases. There are many other symptoms that might be brought out in these five remedies mentioned, but we feel that the main characteristics are all that may be retained by us to-night.—The *Homœopathic Recorder*, April 15, 1917.

CONTRIBUTIONS TO THE TREATMENT OF ASTHMA*.

I.—Dr. Percy Purdom contributed the following remarks and cases. He referred to asthma as one of the very common diseases to be met with in general practice. Every practitioner was bound to have many cases to treat and frequent opportunities for testing his faculty for successful treatment. He believes a great deal could be done by means of homœopathy plus other essential things, and first of all he would like to say a few words with reference to those essential things. The two most important points in connection with asthma were: (1) The condition of the digestive organs and diet; (2) the condition of the naso-pharynx, which was an extremely important point. In the majority of cases of asthma in adults there was naso-pharyngeal catarrh, or trouble in the nose of some kind or another, and if that could be cured it went a long way towards the cure of the asthma. That was a point he would illustrate later by his own cases, and was also borne out very strongly by Dr. March, of Reading, from whom he had received a letter strongly upholding that point. It was often found also that attacks were brought on by indiscretions in diet, and this was a point which was generally known. The question of diet was almost as important in the treatment of asthma as medical or local treatment of any kind. He did not know that he had much to say as to making any strict rules for dietetic treatment, but the believed potatoes had a peculiarly bad effect on asthmatical patients. Dr. March confirmed this opinion, and mentioned that he always prohibits potatoes and carbohydrate food in general. As far as other foods were concerned, he thought that milk, fish and eggs seemed to suit quite well without bad effect. Limitation of the number of meals taken during the day also seemed to help a good deal, and Dr. Purdom mentioned that one of his patients now only took two meals a day and greatly benefited by this rule. He took a cup of coffee only in the morning, a good square meal at twelve o'clock, and another at six. His asthma had been much better on this limited dietary, but he noticed that if he ever took potatoes he had an attack of asthma.

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*Presented to the British Homœopathic Society, March 1, 1917, by Dr. Percy Purdom, Secretary to the Section of General Medicine and Pathology.

With reference to the naso-pharyngeal condition, the question of adenoids came in there. This applied more to children than to adults, but occasionally they were found still to be present in adults, and, if so, they should be at once removed. And trouble in the nose or throat which could be attended to by local treatment should be seen to at once. Then one was bound to come up against the question of asthma powders. This was an important point, for it concerned everyone. His own experience was that a patient could not be stopped having asthma powders straight away. Patients had often come to rely on their powders, having an attack of asthma every night, perhaps, say at two o'clock, and unless they smoked their powder they would not get to sleep again. If the condition which caused the asthma could be cured the powders could gradually be left off He had not found the powders interfere with medical treatment on homœopathic lines, by either high or low potencies.

Another thing was the actual treatment of the spasm, and it was most important that something should be done to relieve this condition. One letter which he had received from a provincial doctor, which he would read later, was very despondent on the subject, and the writer thought that nothing homœopathic could do anythihg to relieve the spasms at the time. Dr. Purdom said he could not agree with this. The medicine he found most beneficial in relieving the spasms was kali hydriodicum. Two drops of a 1 in 2 solution mixed with 5 drops of spirit of chloroform, given in half a wine glassful of water every half hour would often relieve the spasm in a remarkable way, and the patient would be able to relax his muscles and go to sleep. That was the medicine he generally gave to the patient as a stand-by to be taken only during an attack. The cases he would relate later on had that medicine to keep by them in case of need, and at the same time went on with the treatment between the attacks. That was by far the most important medicine he had to suggest; another was cuprum, which would help in the simple spasmodic type of cases, and was often the only medicine needed at all. He used it either in the 6th or 30th potency, and had extremely good results in children, where one often got cases of simple asthma with no complications. He remembered one case he had when he first went to Sutton. He was called in by a friend whose little girl was thought to be dying. She had spasmodic croup. He mixed some cuprum 200 and gave this every ten minutes, and in half an hour the child was asleep. Dr. Purdom said this treatment did not pay financially, as in this case the mother always kept the remedy by her, and it was so successful that he was never called in to the child again.

Cuprum arsenicosum and cuprum metallicum were two medicines which were of great value in the treatment of the simple spasmodic type of asthma, but they were not nearly so much use in the bronchial type. Arsenicum itself was of course a great remedy, but he had found it more useful in the condition which led to asthma rather than in the actual spasm itself. Sambucus 1x or 2x certainly helped in some cases, but he had almost given up using other remedies in favour of kali hydriodicum, which he preferred to anything else.

The following case-notes illustrate the treatment of asthma :—

(1) Gentleman, aged 29. Subject to asthma since 4 years old, when it followed an attack of influenza. The attacks usually started about 2 a.m., and became very bad between 3 and 4. They were sometimes continuous for two or three weeks and he would then be free for perhaps months at a time. Hot damp, or cold damp weather would bring on an attack, while he felt well in dry, windy weather. He had cough with yellow phlegm. Overwork, worry or stomach trouble would always bring on an attack. No cough between attacks. Slept well except during attacks, and knew when they were coming on by being wakened early in the morning. The patient was fond of fat, and drank tea three times a day. Weak tea would relieve cough and asthma. Not a nervous subject until the War, since then nervous and excitable. Suffered from eczema on and off. Worse in hot weather or from bathing. Hot bath in evening would always bring on attack of asthma. Great irritation of the skin came on each evening and lasted till midnight. Skin very sensitive.

In July, 1916, a dose of sulphur 200 was given

August 21 : No relief, one bad attack of asthma with irritation. One dose of arsenicum 1m. In October, patient wrote saying he was very much better. No attack.

December 17 : No asthma for whole month, in spite of very hard work. (The patient was manager of a big munition firm in London, often working till past midnight.)

Two weeks ago Dr. Purdom received a letter from him saying that he had had no trace of asthma since November and that his skin trouble was practically well. The man was most enthusiastic about homœopathy, whereas at first he had been very sceptical, and said he had never had any benefit from any other treatment before. The only medicines Dr. Purdom had given him were one dose of sulphur, which did no good, and one dose of arsenicum, which seemed to clear up his trouble at once.

(2) Man, aged 56. Subject to asthma on and off for thirty years. Had bilious attacks as child, digestive trouble ever since. Had catarrh of the nose, throat and stomach when in America some time ago, and ever since occasionally. Very chilly, but better in dry cold weather, worse in spring and autumn. If he stayed where land and water met (seaside, by river, canal, &c.), an attack of asthma was always brought on. Alcohol in any form, also potatoes, would always bring on attack. Bacon, pork, tinned meat, strawberries, all disagreed. Tendency to diarrhœa, stools nearly always loose. No pain or discomfort in abdomen. Very nervous subject, complained of inability to think or concentrate his mind, and of difficulty in thinking of right words to say. Great nervousness before speaking in public. Patient was also subject to crops of boils on his neck. Dr. Haye's asthma cure had been tried, and the asthma was relieved, but the medicine made him very sick. The mental condition suggested silica as the possible remedy. There being no contraindications Dr. Purdom gave silica 1m, repeated in two months. That was all the medicine the patient had, and it is now eighteen months ago. He had had no asthma now for well over a year. He was careful about his diet, never took potatoes, and the dietary no doubt assisted in the good result. This was the patient referred to above, who only took two meals a day.

(3) Married lady, aged 28. History of asthma for three years, no known cause. Married one year and had still-born child, born the month before she first consulted Dr. Purdom. Asthma had been very bad all the time she was pregnant; it stopped for week after confinement, returning again worse than ever.

Asthma attacks commenced at 2 a.m., the patient waking with a sense of constriction. Worse before and after menses. Restless disposition, very talkative, felt she must talk all the time. Very chilly, feet always cold, no sweats. Losing flesh, lost 4 st. in four years. Had been carefully dieted. Nasal catarrh, for which patient had been cauterized. Adenoids removed when 17 years of age. The remedy for this patient worked out to arsenicum. She started with the 200th potency, working upwards, with an occasional dose of sulphur. In twelve months she was practically well. She became pregnant again, went full time without any asthma, and a perfectly healthy baby was born. That was eighteen months ago; since then the patient kept very well except for occasional threatenings of cough and suffocation feelings, and she had had no medicine now for over a year. She had recently written to Dr. Purdom stating that she was extremely well and hoping to have another baby in four months' time.

Referring to simple spasmodic asthma in children, except in perhaps half a dozen cases Dr. Purdom had always been able to cure this with cuprum metallicum or cuprum arsenicosum. Where one had to deal with a case where there were complications, such as emphysema and bronchitis, a complete cure in the same way could not be expected, but before that stage was reached he found the spasms could usually be removed by homœopathic remedies.

II—Dr. March, of Reading, had written to Dr. Purdom as follows :—

"The method employed by me in the treatment of a case of asthma was first of all to examine for adenoids and other post-nasal conditions, such as catarrh due to septic tonsils. This was most important. Then the patient is placed on a dietary allowing considerable quantities of minced beef, hot water, whites of eggs, fish with certain restrictions, green vegetables, fruit and cheese. Bread, rice and potatoes are absolutely barred, Callard's kalari biscuits being given in place of bread. I seldom give any medicine, but frequently have recourse to breathing exercises.

Since adopting this method of treatment, I have never failed to effect a cure, and I see large number of patients sent to me from all parts of the country."

III—Dr. Cash, of Torquay, contributed the following cases and remarks:—

(1) Miss M, aged 70. Bronchial asthma for several years, and attacks of spasmodic asthma. In winter much violent cough with glairy sputum containing black carbonaceous particles. During winter bronchial type prevailed with spasmodic type at othor time. The exciting cause was gastric disturbance. In this case aconite, ipecacuanha and nux were useful. The cough got less, sputum very slight. Cuprum metallicum 5 and hyoscyamus alternately every two hours were also given with good effect. The patient had a relapse during very frosty weather and then conium θ alternated with impecacuanha 1x was persevered with for sixteen days, with great benefit, followed by a course of arsenicum 5, which brought her to good covalescence, a mild touch of asthma only in the morning remaining.

(2) Boy, aged 9. Bronchial asthma and emphysema. Ipecacuanha and aconite in varying strength gave good results. Patient kept in bed. Severe cough, attacks recurring on least provocation. Difficulty of breathing and violent cough come on suddenly and last for hours at a time, sometimes accompanied by vomiting. General nutrition poor; improved by virol and bynol given separately, and milk freely. Latterly a good mixed diet. Hyoscyamus 1x and cuprum metallicum 6 were given. The child had been free from ashama now for three weeks; without cough and the breathing regular, and no physical signs. The child had been ill for some time, the condition of the lung supervening on a cold after walking in a damp garden.

(3) Mrs. W. aged., 70. Patient had been under treatment for attacks of spasmodic asthma with cough, on and off for many years. When she first consulted Dr. Cash, eleven years ago, she was frequently taken with severe asthmatic dyspnœa and cough. The patient was very stout, and although there were no actual

heart symptoms, her condition was precarious. Under treatment she gardually became better, and her asthmatic attacks less frequent. She was last seen in January of this year, and had then gone for four years without any attack. The remedies used in her case had been aconite and ipecacuanha alternating for first four hours, later ipecacuanha only. She was practically cured now of asthma, and from this her heart had become better. She could walk and take excercise much better than when she first came for treatment.

Dr. Cash also stated that he had found in his experience that nux vomica often served well for asthma, expecially when gastric causes were in evidence or kept up the attack. This, persevered in for some time, would clear up chronic tendency to recurrence. Arsenicum was useful also in the old and feeble, and helps the coincident suffering heart and also the emphysema induced by the asthmatic cough. He had occasionally found lobelia useful where vomiting and nausea were prominent. He had given the acetic tincture of lobelia with good results.

IV.—Dr. Newell, of Margate, sent the following letter:—

Although he had treated a number of asthma cases, he was sorry to say that, candidly, he had never had a successful case treated on purely homœopathic lines, and in desperation he usually gave hypodermic injections of morphine. He had hoped great things of homœopathy in this connection, but it had failed. Between the attacks he could speak more cheerfully and much could be done by general constitutional treatment. Arsenicum, cuprum and nux vomica, were all useful in properly selected cases.—The *British Homœopathic Journal*, May, 1917.

REVIEW.

Clinical Gynecology. By James C. Wood, A.M., M.D., F.A.C.S., etc. 236 pages. Cloth, $ 2.00 net. Philadelphea, Boericke and Tafel, 1917.

Since we reviewed Dr. Wilson's *Diseases of the Nervous System* we have got another very good book on "Clinical Gynecology" by Dr. Wood, and we are proud that new school men have begun with vengence to produce monographs in no way inferior to those written by old school practitioners. These monographs we should rather consider to be superior to those of the old school on account of the stereoscopic vision of the authors.

The book in question is the embodiment of the clinical lectures delivered by the author to the senior class of Cleveland-Pulte Medical College and students and practitioners of dominant schools attended those lectures. This very fact, however, shows how interesting these lectures were. The author's endeavour was "to help bridge the chasm which unfortunately has divided the medical profession into two parties" and we believe his endeavour has partially succeeded. There is no fight between the dominant and new school if viewed with a spirit of justice and of enquiry, but the fight will be eternal if one is carried by sentiment and dirty gain. Healing art is the most sacred of all and every healer of human ills should be above all sentiments and temptations. Hahnemann's method of cure is no secret like the black art of ancient Egypt. The books are there and if one but chooses to study them he is welcome and can test the law upon his patients when he will be amazed to find the infinite superiority of its results.

In the "foreward" the author has given a general outline of the development of the law of homœopathy and he has also given the results of the most recent scientific works which are carried on in the homœopathic hospitals and schools of America. He has also shown how homœopathy is slowly gaining ground by quoting a few passages from Dr. Hyot, a distinguished exponent of the Regulars in America and we cannot help quoting them—

"Our knowledge of the physiological action of drugs is based largely upon animal experimentation. We must remember that most of the work has been done on normal animals and that in therapeutics we are dealing with sick human beings; next that the nervous system even of higher animals differs distinctly in complexity from that of man, and the same is true to a lesser degree of the other systems of the body; for instance, a dog will stand a dose of morphine much larger than that for a man, if the dosage is given according to body-weight, etc. (Hyot, *Practical Therapeutics*, 1914, P. 21)." Thus we see the Regulars are climbing down gradually and they now see the necessity of demonstrating the effects of drugs upon healthy human beings like their own Nestor of medicine, Dr. Haller. It was Hahnemann himself who developed this method and the production of fever by Cinchona was to him as was the fall of an apple to Newton. Giving up all his practices he began to study the effects of drugs upon healthy human beings and proved forty virulent drugs upon his own body. This was done a century and a quarter ago and "at a time when the present accurate methods of diagnosis were unthought of."

The present day advance of Science instead of denuding the rock-base of homœopathy has been making it firmer and firmer by the deposition of adamantine facts and homœopathy has now the glorious banner to unfurl and proclaim to the world that her father was not a mere "visionary dreamer". What would our opponents say to such an eminent man of science as Professor Von Behring, who writes thus :—

" The scientific principles of this new tuberculotherapy are yet to be established, just as the scientific principles of my antitoxic serum therapy remain to be explained, notwithstanding the assertion by many authors that the therapeutic action of my diphtheria and tetanus antitoxins is clearly understood since the promulgation of Ehrlich's side-chain theory. For speculative minds the new curative substance will undoubtedly become a most interesting object of scientific investigation, but I do not believe that medicine will profit much by it. In spite of all scientific speculations and experiments regarding small-pox vaccination, Jenner's discovery remained an erratic block in medicine, till the biochemically thinking Pasteur, devoid of all medical class-room knowledge, traced the origin of this therapeutic block to a principle which can not be better characterized than by Hahnemann's word: 'HOMŒOPATHY.'

"Indeed, what else causes the epidemiological immunity in sheep, vaccinated against anthrax, than the influence previously exerted by a virus, similar in character to that of the fatal anthrax virus? And by what technical term could we more appropriately speak of this influence, exerted by a similar virus, than by Hahnemann's word: HOMŒOPATHY."*

Then again what would they say to Professor Rudolph Arndt a distinguished biologist of the present day, who probably knows nothing of homœopathy but has shown that "if strong irritants destroy vital processes minute ones favour and arouse them to the highest activity"? Does this not prove emphatically the dual action of a drug? Descending from the physiological to the physical phenomena, do we not find the dual action of physical forces? What do we mean by the high and low frequency currents? What do we find in thermo-electricity about the deflection of a galvanometer when the heat applied to one end of the twisted wires is great or small? What is the effect upon a photographic plate when one tries to take the photo of the sun direct without the intervention of any coloured glass? These and such other facts staring at the face of a sensible man cannot but make him pause and think deeply before he abandons

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*"One of the most intimate of Hahnemann's followers was a veterinary surgeon named Johannes Joseph Wilhelm Lux. He wrote a book with the little, 'The Isopathy of Contagions; or all the Contagious Diseases Carry the Means of Their Recovery in Their Very Own Infecting Matter,' (Leipzig, 1833). When I was a clinical student Germany had forgotten him altogether. * * * Some remembered him as a perfectly ridiculous or laughable or despicable person who could grow nowhere but on the soil of a sectarian medical faith. But if anybody has ever come near the idea underlying the serotherapy of modern art, it is Lux, the despised homœopath."—A. Jacobi.

homœopathy as the result of a crazed mind or a visionary dreamer.

The book under review is divided into fifteen chapters and we can dispense it by one word, saying that all the chapters are masterly dealt with. Keeping the superiority of the homœopathic therapeutics in mind (as those who practice homœopathy cannot but do the same) the author did not hesitate to suggest remedies which are sometimes not necessarily homœopathic.

We must thank the publishers for the selection of such an able writer and for the nice got up of the book even at this time of War when it is difficult to procure good papers, etc.

EDITOR'S NOTES.

The nations tobacco bill in War-time.

According to the honorary statistician of the British Anti-tobacco and Anti-narcotic League the tobacco bill of the nation for the year 1913 has exceeded that of the previous year by £8,650,000, the total expenditure now reaching the figure of £48,630,000. The increase in consumption, however, according to the same return, is out of all proportion to this, for it is 3·8 per cent., as against 2½ per cent. expenditure. The increase in consumption, it is interesting to note, since 1911 is 24½ per cent., and the increase in expenditure 53½ per cent. It may be concluded that the increased expenditure includes the raised cost of tobacco and duty. Considering, therefore, the increased inducements to smoke owing to the war this advance in consumption is not so large as might have been expected, although the total amount consumed and the money expended upon it appear as formidable figures. Well-meaning people are calling attention to these statistics and ask that some steps should be taken to effect a substantial reduction in this bill in the interests both of economy and the nation's health.—The *Lancet*, March 31, 1917.

X-Ray Intensifying Screens.

In the course of a paper on the physical properties of intensifying screens, read to the Röntgen Society, Mr. T. Thorne Baker, F.C.S., said that before many months were past the sensitiveness of these accelerators was likely to be increased by 200 or 300 per cent. Methods had also been evolved whereby the size of the crystals could be controlled, with the result that the grain of the intensifying screen was practically no larger than that of the photographic plate; this was a considerable advantage. It was advisable to place the screen above the plate sensitive side downwards, and not in the reverse position. Whether the *x* ray plate or the ordinary plate was the better for screen work depended upon circumstances, and one plate might be better under certain conditions and less satisfactory under other. The grain of ordinary plates was apt to be much coarser than that of good *x*, ray plates, in which the silver bromide was precipitated in an exceedingly fine form. Some workers advocated warming the screen before use; it was true that there were certain forms of calcium tungstate which would fluoresce rather more brightly in a warm atmosphere than in a cold, but a very slight increase in exposure would have the same effect as any auxiliary method. As a screen coated with only a thin layer of calcium tungstate would give a better result with soft rays than with hard, an entirely different result might be obtained when making comparisons of screens with a tube running soft from that which was obtained with a tube running hard. He believed that two standards of screen, one for installations of low power and another for installations of high power, would be adopted in the future. The effect of age on the screen resolved itself again into a question of crystalline structure. Calcium tungestate could be prepared in many degrees of crystalline fineness. If the crystal structure was good there was no sign of destruction with age, but otherwise there was a definite tendency for the crystalline particles to go back to an amorphous state, and to lose speed under the action of the rays if the screen were used a good deal. Most of the modern kind of intensifying screens could be washed in water; if not, they could be cleaned with benzol or alcohol or a piece of rubber. In the case of a screen splashed with developer, however, there was no known method of purification as the developer was a powerful oxidizing agent.—The *British Medical Journal*, April 14, 1917.

Progress of the Calcutta School of Tropical Medicine.

A year ago we were able to report that the foundation stone of the Carmichael Hospital for Tropical Diseases had been laid, and to record the satisfactory progress of the institution. During the last year the hospital has been nearly completed, the donations, amounting to 35,000, for the construction of the top story having been provided by the Calcutta firms belonging to the Bengal Chamber of Commerce. The total subscriptions to the endowment fund have been risen from £20,000 to £40,000, which will allow of the completion and partial endowment of the hospital, and, in addition, annual subscriptions of over £5,000 for research, contributed by the great industries of Bengal and Assam, will be available when the school can be opened—possibly in October, 1918. Meanwhile, plans are under consideration for the addition of 80 ft., to the height or three stories, to the north wing of the laboratory. This will accommodate an out-patient department and dispensary on the ground floor, and hygiene laboratories for practical and theoretical teaching for the university diplomas in public health. A full course for this diploma has not yet been provided in India, although instruction in the prevention of tropical diseases, which are the most important from the public health point of view in India, can obviously best be imparted in such laboratories as that provided in the Calcutta School of Tropical Medicine. On the third floor there will be space for further research laboratories, which will soon be required on account of the success of the endowment fund in providing several research workers in addition to the Government staff of the school. Omitting the cost of the biological laboratory of the Medical College, which has been included in the new building for administrative convenience, the Calcutta school possesses in its laboratory, hospital, and endowments, property of the value of £90,000, of which £40,000 has been provided by the Government of India on the advice of Sir Parday Lukis, Director General of the Indian Medical Service, and an equal sum raised by the endowment fund, of which Sir Leonard Regers is the honorary secretary. The remaining £10,000 has been found by the Bengal Government, whose finances have been severely handicapped by the war. It is hoped that the Bengal Government will be able to contribute some substantial help towards the hygiene extension before very long, to enable it to be opened with the rest of the building after the war. This will complete the laboratories as at present proposed, although the foundation has been designed to allow a fourth story to be added at a later date, a wide view having been taken of the future possibilities of the institution. The *British Medical Journal*, April 14, 1917.

Clean Milk.

The dangers to which the community is continuously exposed by the contamination of the milk-supply are set forth in a pamphlet just issued by the National Clean Milk Society, whose avowed objects are to raise the hygienic standard of milk products and to educate the public in the importance of a clean and wholesome milk-supply. A useful form of public education is afforded by a well-executed poster illustrating the unlimited opportunities of soiling undergone by milk between the cow and the bottle-fed baby. The pamphlet contains the result of an investigation into the hygienic quality of the milk supplied to babies attending certain schools for mothers. In samples supplied by 27 dairymen to seven London schools the Lister Institute of Preventive Medicine found the colon bacillus in every case and twice the tubercle bacillus as well. Both were found in a sample of milk contained in a glass bottle stated to have been sent direct from the farm to the consumer. Such a condition of things would not be tolerated in many of the large American cities, and local authorities in this country ought to be in a position to prevent the sale of such an article of diet. The figures quoted, and other replies received in answer to questions addressed to all schools for mothers throughout Great Britain and Ireland, have led the society to draw the melancholy conclusion that for all practical purposes the subjects of clean hygienic milk has been ignored in England. Pending more effective action by local authorities, the pamphlet suggests certain steps which might be taken by these responsible for the feeding of young children including the unexpected visit to the farm and milking time and the filling in of a "score card" for dairy farm inspection supplied by the society. The pamphlet should command attention as dealing with a vital national question, and its study will, we hope, result in a substantial increase of the membership of the National Clean Milk Society, whose address is 2, Soho-square, W. I.—The *Lancet*, May 5, 1917.

More Drug Legislation.

First came the Boylan Law, then the Harrison Law, and now Mr. Charles B. Towns has appeared before Cangress with a pamphlet urging still further restrictions. Mr. Towns in his latest contribution to the subject of drug abuse acknowledges that he perpetrated the Boylan Law and regrets that it was emasculated by the medical profession. He further points out that even in New York State it is possible to obtain narcotics in any desired amount and to traffic in them largely because of the failure of adjacent states to provide corresponding legislation. It is unnecessary to lay again before the profession of this state the various reasons that Mr. Towns has advised repeatedly for the control of the drug habit. Physicians as a rule realize their responsibility and are for the most part conscientions in their use of habit-forming drug; in point of fact it is doubtful whether a canvass of all physicians' supplies would show enough of a stock of narcotics to cause any considerable ground for criticism. But Mr. Towns seems to be convinced that the evil should be rooted out and so would begin at the root; he makes the statement that, "A basic way to deal with this question would be to restrict all uses of opium to its crude form and to its forms as laudanum and paregoric—Where an opiate its indicated there are very few instances in which the required results could not be had from the administration of the crude product—If the traffic in and sale of this drug ware reduced to traffic and sale of crude opium, it would not inconvenience the medical profession in its legitimate use of the drug in any way whatsoever and it would immediately stop this large illicit traffic that has grown out of the habit-forming drug situation."

One is interested to know on what authority this generalization was based. We have it in mind that before advancing science introduced morphine and the other accurate forms of opium derivatives, Thomas de Quincy wrote his "Confessions of An Opium Eater" and told how he drank laudanum from a decanter. It is not reasonable to believe that so long as human weakness suffers from pain or the apprehension of pain, the bulk of humanity will deny itself morphine as indicated for the sick; for the minority who abuse it, there are other ways to deal with the problem. Neither will physicians as a class consent indefinitely to lay restrictions governing their right to employ drugs as their judgment indicates.

There are certain reasonable restrictions in the use of habit-forming drugs which the profession is ready to accept. If every state would standardize its public health laws and accept a unifrom Federal relation, enough would be accomplished to check the great bulk of traffic in drugs. The writer has again and again emphasized the impotent of legislation that is not based on a wide popular conviction and it is folly to clutter up the statute books with more restrictions until the general public is ready to back them up. In so far as Mr. Towns, or any other reformer, will urge reasonable measures step by step as they are indicated, this Journal will back him up, but it disagrees with this latest fantastic pronouncement of his that proposes to take us back to the early Victorian era in England plus a Russian despotism.—*Long Island Medical Journal*, February, 1917.

Wounds from Aerial Torpedoes.

G. Kelemen (*Muench. med. Wock.*, December 12th, 1916) has described the features of aerial torpedo wounds. The torpedo is spindle-shaped and 15 to 20 cm. (6 to 8 in.) long. The amount of the explosive charge is great compared with the thin shell of the torpedo, which breaks up into minute fragments, some as sharp and fine as needles. The characteristics of the wounds were determined by the shape and size of these fragments and by the concussion following the explosion of a large charge at close quarters. Not infrequently as many as fifteen or twenty wounds, mostly superficial, were found on the same person. When they had been inflicted with considerable force they resembled fine stab wounds, but were bot sufficiently penetrating to pass through a limb or to fracture a long bone. The only fractures observed from this projectile were fractures of the ribs, and in one case three ribs were divided as if by a knife. The skin was cleanly cut, not bruised. It was very difficult to locate these fine fragments at a first dressing station, and in two cases of multiple abdominal wounds it was impossible at first to say whether the abdominal wall had been penetrated to the depth of the intestines or not. In one case a clean cut of the femoral artery soon proved fatal. The skull was never pierced, and the wounds of the head were little more than scratches, but superficial and deep wounds of the eyes were fairly common, as were lacerating wounds of the face. The sudden and great changes of atmospheric pressure caused by the explosion resulted in shock, ranging in intensity from slight dizziness to prolonged and complete unconsciousness. Less characteristic were the wounds caused by earth, clothing, and other foreign bodies driven into the body.—The *British Medical Journal*, April 7, 1917.

Gunshot Wounds of Head.

Richard Fibrich (*Wien. klin. Woch.*, October 19th, 1916) states that as *x* rays were not available at the clearing station in which he worked, an operation was not undertaken in cases of head injury unless a freely open wound was present. In such cases a gauze drain was inserted and the wound closed around it; the gauze was removed in three or four days. All other penetrating wounds of the skull were passed on to the division hospital, where they wer sorted, moribund cases were treated with morphine and superficial splinters removed; in favourable cases discharging wounds were cleaned up under a local anaesthetic. Penetrating wounds were sent away after the first shock had passed (in one or two days), but those operated upon were retained until they showed signs of improvement (ten to fourteen days). Of 361 wounds, eighteen were operated upon in the clearing station. Of three cases of penetrating wound two died, and one, involving the mastoid process, recovered. Of fourteen open wounds, five died, seven were discharged improved, and two as recovered, one of them being passed for service. One case of splintered wound, produced by a grenade, recovered.—The *British Medical Journal*, April 7, 1917.

Demineralization of Muscle in Phthisis.

Professor Albert Robin has reported to the Academy of Sciences (*C. R.*, February 5th, 1917) the results of his investigation of the phenomenon of decalcification in phthisis. Briefly stated, he found by analysis that the diseased parts of the phthisical lung contained less and the healthy parts more mineral constituents, and he regarded this surmineralization of part of the lung as a defensive phenomenon. He argued that if the surmineralization were due to functional activity, the heart muscle, which never rests, ought to be richer in mineral constituents than other muscles, and this he found to be the case in healthy subjects. In the first subject the heart had 1.247 grams mineral constituents to 23.200 grams of total residue, while the soleus muscle had 1.152 grams for 25.600 grams of total residue. In the second healthy subject the proportion of mineral constituents in heart muscle rose to 1.567 grams for 26.627 grams of total residue and in ordinary muscle to 1.299 grams with 27.446 grams total residue. In cases of rapid acute phthisis the mineralization of the heart was markedly lower, though it tended to increase with the duration of the disease. In the chronic form, on the contrary, it was about equal to that of the healthy subject. The mineralization of ordinary muscle was found to be less diminished, but it decreased in the chronic form instead of increasing, as was the case of the heart. The total nitrogen of the heart only underwent trifling variations and reached its maximum in the cases of chronic phthisis, whereas in muscle it was in the chronic cases that the total nitrogen was most lowered. Professor Robin considered that these facts might be of value in treatment. In acute phthisis, where the resistance of the tissues was overcome by the infection, where the heart, the active muscle, was demineralized more rapidly than the inactive muscle, absolute rest was indispensable. In chronic phthisis analysis showed that mineralization of the heart was about normal, while in the other muscles it was diminished. The indication was therefore to give these subjects moderate exercise within the limits of their powers instead of insisting upon rest, which diminished the sum of resistance.—The *British Medical Journal*, April 7, 1917.

CLINICAL RECORD.

CASES OF COMOCLADIA DENTATA*.

By Dr. R. Gibson Miller, Glasgow.

A healthy-looking, well-developed girl, aged 16, was admitted to the Houldsworth Homœopathic Hospital, Glasgow, in December, 1915, complaining of severe pain in the right sacro-iliac region, and right side of the abdomen.

The pain first appeared when she was aged 11. No history could be obtained of any injury. She has much treatment, and finally, three years after the onset, the pain became so much worse that she was admitted to the Glasgow Royal Infirmany, where a diagnosis of chronic appendicitis was made. Operation gave no relief. About three months later the abdomen was again opened, but no good followed. After the second operation the pain increased in severity, and in addition she suffered from persistent vomiting.

On admission to the Houldsworth Hospital the following symptoms were present, viz.: severe throbbing pain, mainly at the junction of the right ilium with the sacrum, with at times severe shooting from this region into the right iliac fossa. The pain was very markedly worse from the heat of the fire or of a hot bottle, and much relieved by a cold compress. It was not aggravated by motion, though walking any distance was apt to increase pain. There was tenderness to deep pressure in the right iliac region and also over the right sacro-iliac region. There was some relief from lying on the abdomen. Bending body backward aggravated the pain. It was also much increased before and during the menses. The pain had no relation to defæcation or urination, nor did any type of weather affect it.

The patient at times complained of subjective coldness of the right lower limb, and also of numbness of the right anterior thigh. Menses were regular, scanty and short. There was no leucorrhœa. Cream and butter had always disagreed with her, but fat could be taken freely without any bad effects.

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*Presented to the British Homœopathic Society, February 1, 1917.

She is liable to attacks of eructations, tasting of food eaten hours before, and associated with this she had dull headaches, which were relieved by the application of cold cloths; coppery taste; much thirst, and tenderness of the stomach to any pressure. There was a very marked general aggravation from heat.

Mr. Patterson examined the patient under an anæsthetic, but could detect nothing beyond a slight induration in the appendix region.

Three doses of puls. 200 were given on December 21, 1915, but as no improvement followed the case was restudied, and on account of the site of the pain (right sacro-iliac), its throbbing character, and the marked aggravation from heat, three doses of comocladia dentata 200 were given on January 4, 1916.

A prompt and marked improvement followed and continued for three weeks. On account of a slight return at this period, three more doses of same potency were given with steady and continued improvement. The patient was seen three months ago and reported that she was in perfect health, and had not had any return of the pain.

Towards the end of the treatment a nasal catarrh developed; but as it was ascertained that this had been present long before the sacro-iliac pain, this reappearance of an old symptom was regarded as fovourable, and being left alone, it soon passed away.

As a rule the pains of comocladia are relieved by motion; but in this case there was no such relief, and in fact the pain was rather aggravated by walking. This confirms symptom 282 in Allen's Materia Medica, vol. X.

The most characteristic pain of this remedy is throbbing, which is aggravated by heat.

In amplification of the action of comocladia, Dr. H. H. Patrick has kindly allowed me to mention the following case :—

Miss X, aged 50, of a mild, sympathetic temperament, had complained of obstinate constipation for years, with entire absence of all desire; the stool being large, thick, knotted and at times covered with mucus. Pain in lower abdomen, and right sacro-iliac region, of a burning character, worse at night in bed, making her restless :, worse from heat, and before and after stool.

Persistent swelling of the left foot without apparent cause; easily startled by noise; frequent nondescript rheumatic pains worse on change of weather. General aggravation from heat and in the morning, when she feels very tired.

Natrum mur., graph., and tuberc. had given some relief, but the condition always returned. Comocladia cured the sacro-iliac and abdominal pain and constipation, and reduced the swelling of the foot. The 200th potency seemed to act for about six weeks.

Dr. Dishington has also kindly supplied me with notes of the following case, in which comocladia proved very helpful.

For eighteen months patient has suffered with pain, swelling and induration of right elbow and wrist; cannot straighten elbow in the morning on rising. The pain is throbbing and burning, and is relieved by cold applications and when in the open air. Headache frontal and lasting all day, better in the open air. Appetite fair, thirsty, nausea and occassional pain in stomach, and much flatulence. Bowels regular. Menses regular, but preceded by abdominal pain. Apis, tuberc., puls., ledum, lac. can., sulph., nat. sul. and nat. mur. gave only very temporary relief. Finally comocladia 200 was given and cured the case.

After the first doses of comocladia, a small, red, itching rash appeared, but in a short time it passed away.

ADDITIONAL NOTES BY DR. J. WEIR.

Comocladia dentata (tinct. leaves and bark) belongs to group of plants, Anacardiaceæ, which includes :—

(1) *Anacardium orientale* which comes from East.

(2) *Anacardium occidentale*, the Western anacardium or cashew nut.

(3) *Comocladia dentata*.

(4) *Rhus toxicodendron* or poison ivy.

(5) *Rhus glabra* or the common sumach.

(6) *Rhus radicans.*

(7) *Rhus venenata.*

Comocladia is the rhus common to the southern parts of U.S.A. and Cuba. Upon the blossoms of this plant bees feed in certain seasons of the year. Those who partake of the honey at such time are liable to eruption much resembling erysipelas. It is very similar to rhus tox. Both remedies have pain > motion; both may be called for in erysipelas; caused scarlet redness of body, with burning and itching; both produce weakness, numbness, &c

They differ in eye symptoms :—

Comoc. < near warm stove. Rush, > by heat (apis, < near warm stove).

Ophthalmia of mercurius, argent. nit., and anti. crud. < radiated heat.

Rheumatic conditions of comocladia compared ō rhus. These and general symptoms have in common.

> motion < rest.
pressure night.
open air heat (rhus opposite).

The *British Homœopathic Journal*, March, 1917.

Gleanings from Contemporary Literature

HYDROTHERAPY; ITS USES AND ABUSES.*

BY ROBT. WALTER, M. D., WALTERS PARK, PA.

There are at least two sides to every question, which sides might be multiplied a hundred-fold because of conclusions varying in response to innumerable angles of vision. For which reason a vantage ground of observation becomes a matter of supreme importance. Theory necessarily precedes practice. Unconscious though it be, it still remains everlastingly true that what we do, corresponds with what we think, the thought again depending largely upon what we see, and how we feel, unless indeed science intervenes to correct our vision. If it were not that intellectual, if not moral, astigmatism is more common in our day than is that which is physical, we might place some dependence upon the facts of observation. What these facts are, and especially what they mean, is a primal consideration with all who are in search of truth. Facts are stubborn things, and being around, about and in us every day, they become bewildering in their variety and multiplicity.

This world's a wilderness of fact,
To all who simply see and feel.
To all whom observation trust,
The things as seen are truly real,
But larger thought and broader view,
Another realm of truth reveal.

That other realm is the realm of science, which transcends in importance every other field of observation. Observation is a backward and inward process, opening up to us a world of speculation, while science is outward and forward, from cause to effect, power to product, premise to conclusion. The first consideration in all science is a premise from which to reason, which premise properly consists of the power or cause of the production. The cause is first, a potency invisible, and therefore never a fact of observation. We observe effects but infer causes, which inference is the primal step in every science.

This has been especially true of those reliable sciences, astronomy and chemistry. It was the conception and discovery of the causes of their phenomena that has given to us a wondrous power of production, as well as the clearest explanation of their movements. The same principles must apply to both medical and sanatory practices if we would achieve success. *Correct location of the power that cures* is the first step towards a science of cure, and this can never be effected through observation of phenomena any more than were astronomy and chemistry. Error here spells error everywhere. It has always been discovery first, discovery of the cause, which is the power of production, with observation and experiment afterward, that has given to us all the glorious achievements of science.

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*Read before the Society of Physical Therapeutics, June 27, 1916.

Hydrotherapy, like most other forms of therapeutic practice, has been unfortunetely the product of observation, not observation of causes but of effects, which effects, occupying in extreme the opposite of causes, should yield results the opposite of what causes yield. Causes being invisible are easily misunderstood or ignored, observers being too generally content with superficial knowledge, which will be found to be not only different from, but the opposite of exact knowledge. The things observed are temporal, evanescent, ever-changing, facts which render them wholly untrustworthy as a basis for practice, and especially as a premise from which to reason; it is the things not seen that are eternal and unchangeable, of which gravitation and chemical affinity are everywhere recognized examples.

In saying all this, we are simply seeking a method by which to correct the errors and establish the truths of hydrotherapy, and inferentially, of all forms of medical practice. Hydrotherapy, like medicine, is a system based upon observation, "Nay, it may be said to consist solely in observation," a medical authority asserts of medicine, a fact which at once brings to our consideration the trustworthiness of such a process.

Observation means, of course, observation of appearances; for what can one observe but what appears, the doubtful nature of which has been an age-lasting phenomenon. In this connection, however, a new light has been discovered, showing that appearances are not only deceptive, but the exact opposite of the truth. Science has declared this fact in more ways than one, of which the great Newton's demonstrations are typical.

> The changeless moon seems changing ever,
> The sun sets daily, yet sets never,
> The stars seem near and yet so far,
> So small they seem so great they are,
> It is a world of seeming.

We are not so much interested in showing the untrust-worthiness of practice based upon observation of appearances, as we are in showing that appearances naturally exhibit themselves as the opposites of the truth, so that practice based upon them is destructive rather than curative. Things are not what they seem, but the opposite of what appears. The sun does not revolve around the earth, but the contrary, no matter what appearances say.

Perhaps no better illustration of the value of observation, and the true methods of applying it to successful work, can be found than in photography. The photographer, peering through the glass, observes objective nature, but who does not know that what he observes is nature upside down which appearance is corrected by reversing the picture in printing it, a truth which is verified in every real science, of which we have seen astronomy is the illustrious example, but which appears only less clearly in medical and sanatory practice.

Hydrotherapy, originally known as water-cure. was introduced to the world by Vincent Priessnitz, a German peasant, at about the same time that the medical profession indulged a complete somersault of practice, abandoning all previous methods of depletion by bleeding and purging, and adopted in their place the plan of what they called "sustaining the patient's strength," to be effected by the use of tonics and stumlants, and latterly the use of stimulating foods. The use of nervines of some kind became almost universal, of which cold water bathing proved to be one of the most effective, even when the internal use of water was sometimes prohibited. How effective? Effective in making *apparent* the power which the patient already possessed. It were an absurdity to suppose that cold water, any more than alcohol or strychnia, gives to any one what it does not have. In all cases the patient supplies the power of life, which is the only power of cure, which power becomes manifest whenever called upon to do work or to resist violence, for which reason the violence of cold water cure soon rivalled in its effects the equal violence of drug poisons. These all when applied, arouse the vital instincts to resistances, and give an appearance of strength, but it were absurd to suppose that they communicate power. They increase the expenditure and consequent appearance of power, which, being effected through nervous activity, depletes nerve and brain force, and fills our hospitals with neurasthenics, and our asylums with the insane, and has become the chief explanation of the remarkable increase of nervous diseases everywhere observable.

All knowledge begins with observation as illustrated in the child-hood of the race, as well as in that of the individual, but science is the product of *reflection* not of observation. The facts of experience must be reversed before the truth can be established. Science, it may will be said, is the light of the mind, and as such is perfectly illustrated by the light which circles our globe. And the truth is an incontestable one that all light, whether mental or physical; is due to reflection, of which the light of science is no exception. It is perhaps not generally known that the sun's rays are black, not bright, becoming bright by a turning back of these rays from reflecting surfaces. The deepest midnight, we well know, receives its silvery touch not from direct radiations from the sun, but by reflections of these black rays from moon and stars, while the rest of the sky continues in darkness except from these reflections, notwithstanding it receives equally the sun's radiations.

The light of day is the product of the same law: we should be in Cimmerian darkness were it not for the presence of reflecting surfaces always in our atmosphere, which turn back these black rays, so causing them to brightly shine, and give us light of day. These reflecting surfaces are the dust everywhere present, which reflects the sun's rays in all directions, and so yields not only light of day, but color of clouds and sky, and affects to a large degree the climate of our country. Who would verify the presence of dust, and even of its reflecting power, let him shut from his room all light except direct rays of the sun shining, it may be, through a knot-hole, and he will be amazed at the omnipresence of dust and its reflecting quality. And John Tyndall has proved that by burning out all dust from a glass tube, and allowing the sun's rays to pass through, nothing but a streak of black can be seen, so firmly establishing the above truths.

That the apparent and the real are direct opposites, and should be clearly recognized as such, in order to make successful medical practice, is further shown in connection with that great fundamental problem of medical science, *the nature of disease.* In accordance with observation, disease is the most destructive agency known to man, but a more comprehensive view shows it to be the opposite of what appears. Because most men die of disease, it is consequently regarded as our greatest enemy; all the while the scientific view shows it to be a true friend. Instead of disease being the cause of death, as is generally believed, it is, on the contrary, a struggle of life to avoid death. And Sir Frederick Treves, the eminent surgeon who operated some years ago upon the late King Edward, and who now stands at the head of his profession in England, has been lecturing before the Philosophical

Society of Edinburgh, and elsewhere, showing that disease is Nature's process of cure. "If it were not for disease," he says, "human life would have ceased from the earth long ago." And this is the great truth which for 40 years has underlain the practice which has given name and fame to the sanatory system, and is the true explanation of the remarkable success of homœopathic medication.

That the above is a rational conception of a great truth, the product of reflection instead of observation, is suggested through varied considerations. The primal instinct of life is self-preservation as a prerequisite to continued existence. Repair, as a consequenc of wear, is continually going forward in every living thing, coincident with the natural processes of growth. In addition, accidents and emergencies arise, and it whould have been no part of wisdom if the Creator had neglected to provie for these possibilities. When things go wrong, there must surely be a natural method by which they are to be made right, the doing of which involves labor, often of the most strenuous kind, so that the result is properly called disease, of which space forbids that we further speak.

Fortunately, however, for humanity, neither hydrotherapy nor medicine continues in our day wholly restricted to practice based upon observation, science, the product of reflection, having at length stepped in to rescue our race from the sad consequences of medical empiricism. And it is a great corroborative truth that such science once more discredits observation, and urges practice the opposite of what appearances indicate. Two prominent objections to the theory and practice of homœopathy naturally arise. First, the apparent absurdity of curing diseases by the use of medicines calculated to produce what they pretend to cure; second, an equal absurdity in supposing that their curative virtues are enhanced by unlimited trituration or dilution. To the casual observer, these are real absurdities, but we would remind him that this practice, being based upon discovered law, must, in order to science, be the opposite of practice based upon appearances. The absurdities in this case are certainly no greater than those set forth in the paradoxes of the Christian Scriptures, or in the developments of Copernican astronomy, both of which are in perfect agreement as to the contradictory nature of appearances. The Sermon on the Mount preceded Newton by 16 centuries, but both agree in showing that practice in order to be successful, can be secured only by the employment of methods the opposite of what common observation suggests. "Give, if you would get," is the burden of that great sermon, which is finally summed up in one great formula of law, the Golden Rule. Too generally this rule is regarded as the law of right, which is undoubtedly an erroneous conception. It is, on the contrary, the law of success, declaring the principle which we have been seeking to expound, that results are to be achieved by methods the opposite of what appearances indicate.

Newton's third law of motion, "action and reaction are equal and opposite," but confirms the doctrines of the Great Teacher, and shows that the final result of every movement is the opposite of the original act, a truth verified by that most suggestive Scripture paradox: "Whosoever will save his life shall lose it," which must be regarded as a prophetic declaration of truth, as illustrated in human life on the earth never more clearly than in the practice of medicine to the extent that it is built up from appearances.

In the face of all these facts, in addition to the universal experience of mankind, is it possible to doubt the untrust-worthiness of practice based upon observation. Observation may indeed be useful as a guide to practice, provided it leads to a course the opposite of what appearances indicate. Practice based upon principle is the only successful practice, involving as it does, recognition of the power that produces, as the true basis from which to develop the thing produced. In medicine, the product sought is health, which is best defined as the normal performance of the functions of life. If now we inquire as to the power of these functions, the only answer can be: the power that made the organism, and which, cannot, therefore, be made by it, is the only power that can maintain it in existence, perform its functions, rapair its lesions, cure its diseases, and do whatever is done. To clearly distinguish this power, and persistently maintain its authority as the cause and source of both health and disease, and of all that these represent, is the first step towards successful practice.

But we are not ignorant of the fact that power alone is not sufficient to any result, conditions for the operation of the power being equally necessary. The power that drives the locomotive is steam, but what can steam do without boiler, engine and wheels; but with these combined, they may propel it safely to its destination or dump it into the ditch; it is always the same power, the conditions alone being changed. For the same reason, the power of health and of disease are identical, it is the conditions which determine the result.

The same principles apply in the chemical world. The power that makes dynamite or gun-powder is chemical affinity, and it is the same power that explodes it, and constitutes the force of the explosion;

but the conditions in these varied result are correspondingly varied. Just so the power of cure, as well as of disease, resides in every living thing, and carries forward all its operations, in response to the conditions we supply. It is the power alone that does the work, while conditions determine the character of the work. Unfavorable conditions induce disease, while though which are favorable give us health, the power being the same in both cases.

These two, viz: power and condition, are also known as *cause* and *occasion*, two words which are frequently confounded, and used interchangeably by careless writers and speakers. A cause is properly defined as "that by the power of which an event or thing is," while an occasion is an occurrence, incidental or accidental, which brings into operation the cause. This cause or power must exist before it can work. Being invisible, as are all causes, it is generally overlooked, especially in medicine. The result is ascribed to the occasion, which, though destitute of any curative power, is nevertheless credited with the cure, for the resaon that being from without, its connection with the result is obvious. It is the vitality in the patient that does all the curing, even though the treatment too generally receives the credit. The explosion in Panama of 1,000 tons of dynamite, was due to the power stored in the dynamite, but the occasion of the expolosion was an infinitesimal spark propelled from the White House in Washington. The occasion that derailed the train was an obstruction on the track, but the cause was in the locomotive, the very power that propelled it. Just so, the power of health is also the power of disease, though the occasion of the one is the opposite of that of the other; the work of the one being to preserve health, while that of the other is to restore it. An infinitesimal dose of aconite gave sleep to a discouraged invalid, after bromide and chloral had utterly failed, and appeared to cure him of a supposed organic disease of the heart, but who can doubt that the power of the cure was in the patient and not in the drug. And who can doubt that the supposed power of cure in all homœopathic medicines is from the patient, the medicines but occasioning the vital action that does the work.

And if this be turn of medicines, why not equally so of baths and bathing? These supply no power to the organism, but they determine its direction. They deplete or recuperate it, according to the methods of application, which, when in answer to appearance, inevitably deplete the power in the very act of making it apparent. But if administered in accordance with the principles already set forth, they will lay the foundations of abounding health by accumulating instead of depleting the power.

Again, if the power is in the drug, why should the infinitesimal dose, too small to be weighed, measured or observed, effect results which the same drug, 10,000 times greater, fails to do. The facts compel the conclusion that it is the power in the patient that does the work, the medicine but operating as does a spark introduced into dynamite to occasion an explosion, or into a mixture of hydrogen and oxygen to make water. Hydrogen and oxygen are the constituent elements of water, and when properly mixed, we naturally expect them to produce it, but as a fact, no water appears. If now we introduce into the mixture a spark, a tremendous commotion occurs, showing power somewhere, and water is the product. Who would say that the spark supplied the power that made the water? On the contrary, can we doubt that the power that made it was chemical affinity residing in its elements, the spark occasioning the operation of the affinities. So in medicine, the infinitesimal dose is often the occasion of wondrous results, even though it supplies none of the power. The power that cures is that which made, and which continues in the thing made to preserve what it made, and to heal or cure in order that it may preserve, so making the effectiveness of the work correspond with the amount of the power, and not with the size of the dose. It is because the infinitesimal dose saves power instead of wasting it that it is effective to cure. Sufficiency of power is a primal consideration in all successful treatments, and is well illustrated in the vigor of youth in whom reparative processes are usually active and effective.

The organism itself is the product of power, which power must have been before the product, or it could not have produced it. And vitality, the power of life and of cure, is therefore an inheritance and not a product. It made us but cannot be made by us. It comes to every man as a daily income to be expended in legitimate work, or wasted in riotous living, and the balance between work and rest is the true measure of power possessed. "As thy days so shall thy strength be." With abundance of vitality there can be no disease; even infections and contagions fall harmlessly at the feet of the highly vitalized man. It is vitality, not antitoxin that is the true preventive, as well as cure, of smallpox, diphtheria typhoid, and all other ailments. And with the improved sanitation of our time, not only smallpox and typhoid, but all epidemic scourges are disappearing, and were it not for practice still based upon appearance, whereby the results secured are the opposite of what is sought, they would all soon be things of the past. To this and the accummulation of power is not only possible but very important as a necessary requirement of success in that extraordinary work of life, called disease.

Let us now inquire as to the work that never ceases during life, and that forced upon us in inordinate degree which often exhausts our resources, the vital functions especially when burdened by the excesses of eating and drinking. The first process of life is circulation as the necessary prerequisite to building operations, which operations are properly called nutrition or growth, involving a collateral process known as elimination, removal of the chips. Does anyone doubt the importance of this work or the expenditures involved in its performance? Who tells us that it is a sample of perpetual motion generating in the work the power that performs it?

Not only do building operations involve laborious and skilful work, but laborious work also in the preparation of the building materials. For this purpose we have stomach, bowels, liver, lungs, heart, kidneys; and it is a peculiar fact that most diseases are referable to the failure of one or all of these to do their work effectively. Why the failure? Their capacities being limited, they are too often treated as if these were unlimited, so causing the channels of transportation to be engorged, and all the processes of life obstructed. Perhaps the most serious obstruction takes place in the initial stage of all building operations, which occurs in the capillary circulation, in which the highly vitalized blood of the arteries yields its vital qualities to the cells. But what if the quantity of blood exceeds the capacity of the cells to appropriate? Or, what if the character of the materials is unsuited to the needs of the cells? Obstruction, of course, follows, loss of appetite supervenes, until some blunderer proceeds to still further choke the channels of transportation with additional materials which the organism cannot use, all under the belief that life is the product of food, and will thus be sustained whether the organism can use it or not. Soon nature seeks to save herself by loathing food, ejecting it from the stomach, refusing to digest it, or in numerous other ways, seeks to avoid imposing upon the organism what it does not want, and what it cannot use. Or digesting the food, its combustion proceeds until high blood pressure closes a scene of unexampled fatuity. No more destructive idea ever entered the human mind than the prevailling one that things without life can communicate to human beings the power of life. Appearances may justify the imposition of more materials than the organism can use, but all sound reason discloses the absurdity. All power is invisible, becoming obvious only in the work it does, so that imposing the work makes us believe that we are receiving the very power we are often losing. No doubt we all feel stronger and better after dinner not because the food has been assimilated and power generated, but because the organism has been put to work, so giving a consciousness of power being expended in doing the work, not of power being received. This is as true of the effects of food as of the effects of alcohol or drugs, food differing only in that it constitutes materials to be built into structure, while drugs involve a wasteful expenditure without any compensation. Instead of giving what they seem to give, they are taking it away; it is the patient in every case that supplies the power. and the result is the opposite of what appears. Fasting, so allowing the channels of circulation to be cleared, and not feasting, is the first and natural step in all successful medication. This is itself a system of rest-cure, while feasting too often imposes burdens beyond human endurance.

Let us now turn to the consideration of the remedy. Sleep is nature's sweet restorer, and all treatments that would be successful, should operate as sleep does, which saves power by reducing activities, both mental and physical. Taking from the patient the consciousness of power promotes desire for rest, securing to the invalid improved organic functions in place of the restless activities of the cerebrospinal system. Sleep relaxes instead of tones, reduces appetite temporarily which upon the reaction it promotes, and does generally for the subject the opposite of what appearances indicate. And no treatment administered from without equals hydrotherapy and its collateral processes, of which careful diet is among the more important. The cold bath, shower bath, morning sponge, with full feeding, expend power, both in the assimilation of food and the forced activities of the nervous system. The warm or neutral both, on the contrary, soothes, relaxes, reduces activity and saves power. And we hold it to be an indisputable truth, that the power that heals is that which the patient really has, and not what he seems to have. For what he seems to have is that which is going from him into work done, while that which really saves and heals, being invisible, is to be apprehended only by that aphorism of the ages: "The just shall live by faith," which is the scientific way. Sleep takes away all consciousness of power, because it is saving and hoarding, and all treatments that will be permanently successful, should approximate at least the methods of sleep.

These conclusions are, of course, based upon the doctrine that no living organism can produce the power that produces itself. It generates within itself a physical force for the performance of physical work, just as the combustion of coal gives force to the steam boiler, but which force can no more yield the power that makes or heals, than steam can make either boiler or engine.

The neutral bath is homeopathic to most diseases, and when used with discrimination, is promotive of recovery, while all baths of positive temperature, give an appearance of power by expending it, for which reason they are to be used, if at all, only as temporary expedients. The hot full-bath is a wonderful means of relieving pain, especially of the abdomen, because of its relaxing effects, and by removing congestions and abating inflammations, but should be used with full knowledge of its stimulating and depleting results. Local hot fomentations are less effective for the same purpose, but being promotive of suppuration, should never be used where appendicitis is threatened, or on the throat in diphtheritic cases. On the contrary, pounded ice, held in a suitable rubber bag, is a preventive of suppuration in appendicitis; and on the throat in diphtheria, it is well-nigh a panacea. But the general cold bath is not only useless in any case, but utterly destructive. The American people are already keyed up to excessive nervous tension, causing their movements to be exhaustive, so making it to be of utmost importance that this tension should be relaxed, in order that the power may be accumulated and function performed with ease and comfort.

In cases of fever, a cool, wet-sheet pack, lightly covered, instead of a cold bath, is the proper means of absorbing heat and controlling temperature; at the same time it soothes, relaxes and saves power. The cold morning bath has not a single element to commend its use to human common sense, and when employed in connection with the shower bath, puts its victims clearly on the road to neurasthenia, if not the insane hospital. As long as men, and especially physicians, continue to put their trust in appearances, relying for power upon tonics and stimulants, and cold water fads, so long will it continue to be recorded that additional insane hospitals are imperatively demanded until every county in every state shall possess its own particular mad-house.—The *Journal of the American Institute of Homeopathy,* June, 1917.

The Homœopathic World, June, 1917, London.

The New England Medical Gazette, June, 1917, Boston.

The Homœopathic Recorder, Lancaster, Pa.

The Homœopathic Envoy.

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Long Island Medical Journal, May, 1917, *Brooklyn.*

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The British Homœopathic Journal, June, 1917, London.

The Journal of the American Institute of Homœopathy, June, 1917, Chicago.

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New York Medical Journal, June, 1917.

The Calcutta Medical Journal, July, 1917, Calcutta.

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Vedic Magazine, May, 1917.

Indian Mirror.

Hindu Patriot.

Peoples opinion.

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THE THERAPEUTICS OF THE INTERNAL SECRETIONS: CASES CONTRIBUTED BY HOMŒOPATHIC PHYSICIANS.

WITH AN INTRODUCTORY NOTE BY DR. BURFORD.

The Validation of Internal-Secretory Therapeutics is in the success of Internal-Secretory prescription. The laws which specifically express the therapeutic powers of the internal secretion, and under the ægis of one or another of which all internal secretory *curative* work comes are :—

I. *Arndt's Law.* "Weak stimuli kindle like activity, medium stimuli promote it, strong impede it, and the strongest stop it."

This, which may be summarised as the Law of the Dose, is illustrated in Internal Secretory Therapy by dicta such as that of Leonard Williams, "You can produce the symptoms of thyroid insufficiency by over-doses of thyroid extract"; and again of Ewen Waller, "Nocturnal enuresis frequently yields to small doses of thyroid extract. it is often made worse by large doses"; and further, "The thyroid presumably in some way enables the body to make use of the available calcium supplies. But in

Graves' disease, or under the influence of excessive thyroid feeding, there is an excessive elimination of Calcium."

II. *Hallion's Law.* "Extracts of an organ exert on the same organ an exciting influence which lasts for a longer or shorter time. When the organ is insufficient, it is conceivable that this influence augments its action: and when it is injured, that it favours its restoration." This may be summarised as one of the Laws of the Selection of the Remedy. The greater part of internal secretion therapy as practically applied at the present day is based on Hallion's Law.

III. *Hahnemann's Law.* "Similia Similibus Curentur." The totality of the symptoms, and not the diagnosis of the particular gland defect, is made the basis of the selection of the internal secretory remedy. This imparts not only a necessary specificity to the selection of the remedy, but also amplifies the scope of the remedial choice. As to the values of Hahnemann's Law, in internal secretory therapy, where Hallion's is in defect, there may be cited as evidence the statement of Leonard Williams: "To treat the patient and not the disease is of course one of the therapeutic aphorisms which we save in speech and neglect in practice. But he who neglects it in the presence of Graves' disease, will fail where he might succeed." Also of Macleod: "Thyroid has no specific action on psoriasis: there must be some individual peculiarity which causes the disease in certain cases to respond to the remedy."

I have been honoured by a number of my colleagues with accounts, in varied amplification, hitherto unpublished cases where internal-secretory therapy has been utilised by them with successful results. Their permission for publication has been courteously signified, and the clinical work thus embodied is highly interesting.

I.—CASE OF MYXŒDEMA, CONTRIBUTED BY DR. GEORGE SCRIVEN, OF DUBLIN.

Miss E. F., æt. 50.

1902. *May 7th.* Supra-clavicular swellings at night, hair getting thin, "numb" sensations in head, "sick hunger," constipation; weight at epigastrium; breath short on exertion. (?) Myxœdema—*Arsen. Iod.* 3x.

May 26th. Dr. Beatty considers disease is Myxœdema.

June 20th. Swellings come and go; hair falling; *Calc. Iod.* 3x.

July 18th. The same—swellings less, hair condition worse. Extract *Thyroid* grs. 1½ twice a day.

Aug. 1st. Says medicine made her feel "sore" all over, with throbbing headache—thinks swellings are less—sleeps better. Rep. tabloid once a day.

Oct. 17th. Has been bathing in sea—feels much better—swellings smaller—hair not falling—head well—sleep improved.

1903. *Jan. 7th.* Better all round - can walk much more—no supra-clavicular swelling—sleep better. Rep. tabloid 1¼ grs. every second day.

Dec. 2nd. Has taken no Thyroid since May. Hair natural, sleep good.

1904. *June 20th.* Swelling returned over right clavicle—hair falling—otherwise very well. Thyroid extract 1¼ grs. once a day.

July 11th. Has been oppressed by heat—otherwise well. Repeat.

1904. *Dec. 19.* Swellings returned for two weeks. Repeat.

December 23rd. Much better.

1905. *Jan 13th.* Has continued much better—pains in joints at night. Repeat twice a week.

July 17th. Headaches and swellings returned. Repeat every second day.

1906. *June 27th.* Again return of swellings—feels "stupid." Repeat every dry.

Since above date, all symptoms of Myxœdema improved.

1909. *May 24th.* Scirrhus tumour removed from breast by Surgeon Heuston. The signs and symptoms of myxœdema were all absent.

II.—CONTRIBUTED BY DR. MIDGLEY CASH OF TORQUAY.

Cases of Goitre.

(1) Adéle H., æt 16, seen at Dispensary. Has an enlarged Thyroid, full and soft, swells up at the Catamenia. Heart's action strong and rapid. *Thyroidin* 5x, 3 drops given thrice daily. After continuing this treatment for five months the Goitre had much diminished, and had ceased to exist as a distinct swelling. There only remains some fullness of the neck.

(2) Mrs. S., æt 34. Patient shows a firm hard goitre, size of a goose egg; this has existed eight years. *Thyroidin* 3x, two grains given thrice daily. After four weeks treatment no great improvement. Swelling much the same. *Spongia* 6 was then prescribed for six weeks, when the goitre had become very much smaller, and the patient much better in herself.

Case of Ataxic Paraplegia, due to Disseminated Spinal Sclerosis.

This was a lady of 63, with symptoms coming on gradually for over three years. After many remedies had been tried without much effect, I prescribed Lymphoid Compound Capsules (Lowenthal) (each capsule contains Extract Lymphodic gland, testes, spinal cord and brain two grains, *Glycerophosphate of Iron*, gr. ½, *Glycerophosphate of Sodium and Calcium*, gr. 2). A capsule was given night and morning. After persevering with this for seven months she was evidently, alike to her family and myself, much better.

My notes say:—"Can turn herself much better in bed. Is less restless: various tropho-neuroses such as partial necroses of skin and nails, from which she formerly suffered, became much less frequent and severe. The mental improvement was most marked. General confusion and mental hebetude cleared away. Her interest in family matters, formerly much impaired, now revived, so that as a consequence of her return to her former self the whole atmosphere of the house became much more cheerful.

The severe pain became less. The contractions of the limbs were not affected by the remedy.

Note by Dr. Midgley Cash: "The results in this case were very satisfactory, and such as I consider would have been difficult—perhaps impossible—to obtain by any other means."

CONTRIBUTED BY DR. EDITH NEILD, OF TUNBRIDGE WELLS.

I.—Developmental Defect.

E. D., age 6, female. A defective of Mongolian type. Under my care all her life. Has had various remedies but for three or four years has taken *Thyroidin* IX gr. thrice daily for a month at a time, three or four times a year. She has developed beyond expectation, is helpful in the house, and has begun to go to school, where she is attentive, and apparently teachable.

II.—Developmental Defect.

O. B., age 29, female, An imbecile. Under my care several years. At first extremely nervous, screaming if taken where there were other people. Very excitable and difficult to manage. She has taken *Thyroidin* IX off and on all the time with marked improvement. Is much less nervous. Goes to church and sits quietly. Some mental development has accrued, *e.g.*, will remind her mother of a message. Customers in her mother's shop remark on her increased intelligence.

III.—Cardiac Disease, with Uterine Fibroid.

Mrs. de M., age 49. Mitral Regurgitation (organic, result of of acute Rheumatism). Also uterine fibroids causing severe hemorrhage. Has taken *Thyroid* 3x night and morning for many months. The periods are much less, though still rather profuse, and only last a week, instead of lingering. During my holiday it was discontinued for some reason and (whether propter or post I cannot say) the next two periods were much worse than they had been for a long time. Since resuming the *Thyroidin* the periods are again under control, and patient is better in herself. The condition of the heart precludes operation.

IV.—Cardiac Disease with Uterine Fibroid.

A. G., 47, female, epileptic. Mitral and aortic stenosis, the result of acute Rheumatism: she was also a uterine fibroid. I was called to see her a year or so ago, at midnight, and found her pulseless with profuse hemorrhage. 1 c.c. of *Pituitrin* stopped it immediately, and there has been no really profuse homorrhage since.

CONTRIBUTED BY DR. C. J. WILKINSON, OF WINDSOR.

I.—Semi-solid Swelling over Tibia.

Some years ago, I saw a servant maid (aged perhaps 22), with a semi-solid puffiness over the greater extent of one tibia; it has been deeply incised on the suspicion of periostitis, and a proposal had been made to open the bone and investigate the medulla—in spite of the fact that tenderness was superficial and nightly pain absent. Two or three weeks under small doses of *Thyroid* extract (say ½ grain doses) resolved the whole trouble. The pulse was characteristically slow.

II.—Adrenalin in Glycosuria.

A lady about 60 had a carbuncle on the back of the neck. Her urine was found to contain sugar in considerable quantities. I gave her M.iii. of *Adrenalin* (1 in 1,000) thrice daily for a week or two. I then found that Fehling's solution gave a green precipitate of an earlier date. Dr. Watkins endorsed my finding and added that the changed sugar was not pentose. Similar attacks following dietetic follies responded to similar treatment, and the sugar disappeared for varying times. The patient, however, has now passed on from gouty glycosuria to permanent diabetes, and *Adrenalin* does nothing for her. I regard its action here as quite homœopathic.

CONTRIBUTED BY DR. CLIFTON HARRIS, OF BRIGHTON.

I.—Case of Mental Defect, with Epilepsy and Amenorrhœa.

The patient was a girl of about twenty years who was mentally defective and suffered from occasional epileptic fits and amenorrhœa. *Thyroid* extract was prescribed and she has taken it at intervals now for some years. It has markedly improved her mental state: and her periods have become regular. I think the dose employed was half a grain three times a day. The *Thyroid* is discontinued for a time if the heart rate become rapid.

II.—Note on the use of Thyroid Extract in Obesity.

I have also used *Thyroid extract* for obesity with decided results. I generally give gr. ½ three times a day, watching the pulse and discontinuing the drug when the pulse rate becomes rapid.

CONTRIBUTED BY DR. HENRY MASON, LEICESTER.

I.—Thyroidin in Cretinism: Myxœdema: Obesity.

I had one case of Cretinism a few years ago, which very markedly improved both in general growth and intelligence for three or four years, and then died of pneumonia. I have another case of Myxœdema who has been under observation for twelve or fourteen years and finds *Thyroidin* of much use to her. It does not reduce her weight apparently, but she always feels better and brighter when taking it. She finds most benefit from the gland fresh from the sheep, very lightly cooked; I have known of two cases who took it to reduce obesity, and developed cancer shortly afterwards—multiple sarcomatous growths. I have used it for psoriasis, but prefer *Arsenic* and other remedies.

III.—Adrenalin in Graves' Disease.

Adrenalin I have given to several cases of Graves Disease, and it certainly relieves the symptoms, but I have not seen any case cured by the drug.

CONTRIBUTED BY DR. SPENCER COX, LONDON.

I.—Obesity, treated by heavy Thyroid dosage.

The patient was a gentleman of middle age, in otherwise fair health and daily undertaking arduous professional duties. The trials of *Thyroidin* for the lessening of obesity were made in the spring of three consecutive years. It will be noted that the administration of *Thyroidin* was continued ten to twenty days on each occasion. The results in avoirdupois are appended :—

Observation I. Time, March, 1912. Duration, of trial, twenty-two days,; Dose, ten grains of *Thyroid* gland, given as tablets (B. and W.) thrice daily.

1912	March	2nd	Weight	13	stone	7 lbs.
	„	10th	„	13	„	1 lb.
	„	17th	„	12	„	13 lbs.
	„	24th	„	12	„	11 lbs.

Observation II. Time, March, 1913. Duration of trial, ten days. Dose, as above.

1913 March 18th Weight 13 stone 6 lbs.
,, 28th ,, 13 stone.

Observation III. Time, March, 1914. Duration of trial, seven days, dose as above.

1914 March 15th Weight 13 stone 6 lbs.
,, 22nd ,, 12 ,, 13 lbs.

Note by Dr. Spencer Cox.—The household of this gentleman always divined when he was taking the *Thyroid*, and expressed their objection to the proceeding. The family insisted that it made the patient irritable and depressed. Doubtless they were in an excellent position to judge.

CONTRIBUTED BY DR. REED HILL, IPSWICH.

I. Thyroid in Recurrent Cancer.

Mrs. S., aged 68. Left breast had been removed for Cancer three years previously. A year ago, there was recurrence in the corresponding supra-clavicular glands, followed by growth in the anterior mediastinum, and swelling of left arm. There was also marked pain in the arm and upper left chest. This pain was quite relieved by *Thyroid Gland* 5 grs. nocte. She also took for a time *Suprarenal gland* $\frac{1}{216}$ gr. in the morning, but as this ultimately produced sickness it was discontinued—and no value from its administration was evident. She ultimately died, but free from pain.

II. Adrenalin in Menopausic Flushings.

Miss.—aged about 50 years; climacteric flushings, relieved by *Adrenalin* $\frac{1}{216}$ gr. night and morning.

CONTRIBUTED BY DR. MARCH, READING.

Case of Alopecia.

This was a very severe form of Alopecia Areata in a woman of 25, who never even started to improve until she was put on *Thyroidin.* Beginning with 1½ gr. tablets, she eventually took 5 grs. twice daily. She is now nearly well.

CONTRIBUTED BY DR. H. EATON, NEWCASTLE-ON-TYNE.

Thyroid in material doses has of course been extremely beneficial in suitable cases, notably in :—

I.—Case of Myxœdema.

A woman, aged 65 years. The symptoms were typical, but of only moderate intensity. She had a pink complexion, large tongue, hair scanty and stiff, stolid expression, moderate amount of firm œdema, slow movements, etc. Dose producing best results, 1 gr. B. & W. tabloid daily. Great improvement ensued; there is a definite tendency to relapse if the drug be discontinued more than two to three weeks.

II. Girl of 18 years. Perfectly healthy looking, well-developed, a big, stout girl, the only symptom being dry scaly skin. Great improvement was obtained from 2½ gr. tabloid *Thyroidin* B. & W. one daily ordered at first, afterward taken irregularly.

CONTRIBUTED BY DR. MACLACHLAN, OF OXFORD.*

With regard to *Adrenalin*, I make use of a solution hypodermically in a case of "cardiac asthma," when the combination of *Atropine* and *Morphine* failed, and was from excessive and frequent dosage producing toxic symptoms, especially in regard to the urinary apparatus. *Adrenalin* brought about a marked change for the better; in fact there has been no attack of "asthma" since I used it, now some months ago. I only gave a few injections at comparatively long intervals; the effects produced being my guide when to give and when not to give. Had it not been for the "craving" induced by the previous long continued use of *Atropine* and *Morphine* we would have dropped that entirely also, as we did for quite three weeks after first using *Adrenalin*. The circumstances of the patient are peculiar, and I have been compelled to allow him the occasional use of *Morphine* and *Atropine,* to avoid something worse, ***but he did not need it, so far as the "cardiac asthma" is concerned.*** I only wish I had used *Adrenalin* in the first instance. About the time when I commenced with *Adrenalin,* (to me) surprising change affected the heart, for the ventricles seemed, about that time, to be physiologically separated from their "pace-makers" the auricles, and went on their own normal half-speed. Whether *Adrenalin* had anything to do with this change I am not sure, though that substance is said to be one that can *produce* heart block. Previous to this event the heart was very rapid and irregular, but since then, at any rate for long periods it is fairly regular though slow.

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*This case was described last year at one of the Meetings of the British Homœopathic Society. It is included here inasmuch as it has been rewrittten from the point of view of Internal Secretory Therapy for this series by the author.

CONTRIBUTED BY DR. J. ROBERSON DAY, LONDON.

I.—Case of Myxœdema.

A single lady aged 43, was seen by Dr. Roberson Day some fifteen years ago. She had had occasion some time previously to undertake some stressful nursing, after which her health broke down, and she became obviously anæmic. Sir William Broadbent was called in at this juncture, and the patient was for some time heavily dosed with *Arsenic*, the diagnosis being pernicious anæmia. From this treatment, which together with the diagnosis was renewed at the hands of two other Consultants, much time was lost and no benefit gained. No histological examination of the blood was made.

The patient then came for some three years under the care of the late Dr. Skinner, who commenced his treatment by prescribing *Arsenic* 5. The results were unsatisfactory, and the drug in this attenuation upset the lady considerably. She remained under the care of Dr. Skinner for three years and at the end of that time had improved in health considerably. But the improvement was not stable, and at the time of consultation, Dr. Day noted that the patient was breathless on easy exertion, the skin dry and harsh, much of the hair had fallen out, the speech thick and indistinct, the memory bad, words were displaced during conversation, the face was puffy, the features tumid, together with a marked pink flush over the malar bones. The tout ensemble of the patient was characteristic of Myxœdema. *Thyroidin* was prescribed in doses of one grain, next of two grains, followed by three grain dosage four times in the day. Within a month the generalised benefit was marked: as sensations of faintness had become troublesome the dose was reduced to one third of a grain twice daily. After six months of continuous treatment the patient lost a stone in weight and gradually regained her normal health and strength.

Occasional periods of medication with *Thyroidin extract* were continued for an indefinite time.

There is notable in this case the intolerance of the mxyœdematous condition to *Arsenic.* In the hands of both Drs. Broadbent and Skinner the symptoms of myxœdema were aggravated by this drug. But the increasing benefit from Dr. Skinner's supervision later renders it probable that a much higher potency of *Arsenic* was afterward used. It is also noteworthy that during *Thyroidin* treatment, a blood examination was made, but no pathological change was present.

II. - Psoriasis cancelled during Pregnancy.

Mrs. E. Has had four children, and whilst pregnant with each child the psoriasis has entirely disappeared. She has had psoriasis for twenty-two years. This illustrates the connection between the skin and the organs of reproduction. Also the psoriasis is always much worse and itches very much just before each menstrual epoch.

(Note by Dr. Burford. A definite hyperythroidism occurs during pregnancy. Just before each menstrual epoch the circulating blood is impoverished in its calcium content. Calcium fixation is one of the functions of the thyroid internal secretion)

COMMUNICATED BY MR. DUDLEY WRIGHT, F.R.C.S.

I have found *Thyrodin* 3x useful in the cases of young boys who show lack of intellectual power, with retarded development of the facial bones, etc., as a result of or accompanying adenoids.

COMMUNICATED BY DR. CASH REED, LIVERPOOL.

I have used *Thyroidin* with every great advantage in myxœdema occurring at the time of the menopause. Also with some degree of benefit in a case of infantilism almost amounting to idiocy, the patient being a boy of fifteen.

Didamin has yielded good results in cases of neurasthenia, where the various phobias have been in evidence, or morbid self-consciousness, or baseless apprehension of bodily illness, has marked the clinical state.

COMMUNICATED BY DR. HERVEY BODMAN, BRISTOL.

I have on several occasions prescribed *Adrenalin Chloride* (five minim doses of 1-1000 solution) during convalescence from diphtheria, and I have considered that it had a very beneficial effect on cardiac and vascular tone in this condition.

I have recently had two or three tubercular patients who have made striking gains in weight whilst taking—in addition to other remedies, Carnrick's Kinazyene, containing spleen extract, etc.

COMMUNICATED BY C. S. SPENCER, ASHTON-UNDER-LYNE.

I had under my care a case of troublesome ovarian pain on the right side which was cured by *Thyroidin* 30c, after many remidies had failed. I have recently had good results in a case of Graves' disease, from *Thyroidin* 30c, the pulse dropping from 120 per minute to 96, the patient feeling, as she described it "a new woman."

COMMUNICATED BY DR. F. C. HAYES, OF LEEDS.

In myxœdema *Thyroid* given in doses of from 5 to 15 grains daily seems to me the only treatment at all successful. I have at the present time three such cases under my care, at the Leeds Homœopathic Dispensary, and one in private practice. Of course, the treatment is continuous.

I have used *Adrenalin* internally with benefit in a case of Raynauds' disease, which improved greatly under *Adrenalin* 3x, given thrice daily.

COMMUNICATED BY DR. E. A. HALL, SURBITON.

I have given *Thyroidin* 6x in cases of Graves' disease, in young patients, when the disease was not advanced, and in some instances it has proved very useful. In older people, where the malady was advanced, I have not found the drug of any service. *Adrenalin* I have chiefly used in cases of acute asthma, hypodermically, to relieve the severe dyspnœa, and I have found it act well.

COMMUNICATED AY DR. F. NANKIVELL, UPPER NORWOOD.

I have employed *Thyroid Extract* in tabloids in (1) Goitre, one tabloid being given thrice daily for weeks or months, as cases required, and with decided benefit. Also I have presented this remedy; in (2) Arrested or defective development in young persons; here it has been continued for long periods.—The *Homœopathic World*, June 1, 1917.

EDITOR'S NOTES.

Some Essential Differences between Animal and Vegetable Fats.

The existance of accessory factors in various foods may be regarded as a well established fact, and it is now becoming recognised that there is a considerable variety among these accessory foods. Experiment shows that young rats will not grow if fed on polished rice and butter, or on rice and wheat germ; while if both wheat germ and butter are added the diet becomes adequate. Milk contains both of these factors. There seems to be two groups of these substances; one is the "fat-soluble A" factor and the other contained in wheat germ is soluble in water, not in fat, and has been called the "water soluble factor B." In a recent volume of the *American Journal of Physiology* (vol. xli., 1916) E. V. McCollum directs attention to the distribution in plants of the "fat soluble A," the dietary essential of butter fat. The question arises in view of the present consumption of margarine and other butter similars, whether any of the substitutes can actually replace butter in the diet. The question has been investigated in America by several observers and in this country by Halliburton and Drummond to ascertain whether the chief butter substitutes now upon the market contain the important fat-soluble A factor. Young growing rats were used, their dietary consisting of purified food-stuffs, such as caseinogen, starch, dextrin, sugar, the water soluble B factor, together with the addition of the fat to be examined. A rat fed on such a diet with the addition of lard was eventually found to decline and die, but if the fat-soluble accessory substance A was added in sufficient amount and not too late, the life of the animal was saved and normal growth ensued. Some of the results may be summarised thus :—

"Oleo-oil" margarines.—In these the basal fat of low malting point "oleo-oil" is prepared commercially from beef fat. Osborne and Mendel in America showed that this commercial product contains this accessory factor associated with fats and this form of margarine was found to be equal to butter fat in the nutrition of young rats. For vegetable oil margarines the basis is a cheap vegetable oil, e.g., coconut and peanut oil. Few, if any, of the chief vegetable oils—corn, olive, sunflower seeds, soy-bean, wheat, linseed, arachis, coconut and cotton-seed oils—contain the fat-soluble A. Rats do not grow to adult size when any one of these oils is the only fat present in the dietary. Margarines made from these oils are deficient in the important fat-soluble factor.

Vegetarian suet and lard substitutes.—Those examined were free from the fat-soluble factor; one was a deodorised cocount oil and the other a hydrogenated cotton-seed oil preparation corresponding to "Crisco," sold extensively in the U.S.A. as a lard substitute, but is a useless substitute for butter.

The points raised are obviously of great practical importance and their solution essential to the proper understanding of some of the food problems which the war has forced upon our notice.—The *Lancet*, April 21, 1917.

Sprue.

The war has not resulted in many instances of this tropical disease being seen in this country, but its general prevalence in the East and its occurrence in certain parts of Australia suggest that we must be on the look-out for cases of this nature. Therefore, we think it will be useful to refer to an excellent summary of what is known of sprue, which is given by Dr. A. Breinl and Dr. H. Priestley in the *Medical Journal of Australia* for February. Sprue is a chronic inflammation of the alimentary tract, affecting chiefly the tongue, œsophagus, and small intestine. This leads to degenerative changes, ulceration, and to atrophy of the liver. Characteristic clinical features and the passage of numerous large, frothy, clay-coloured stools, the general intractability of the diarrhœa, the intermittent course, and the progressive wasting. The cause of sprue is unknown. It was thought that because, from the tongue and fæces of most of the cases, certain yeast-like organisms could be isolated that these were the causal agents. Castellani isolated quite a number of strains, and hints that they are the responsible organisms, as do also Bahr and Ashford; but it has been shown that similar yeasts can be obtained from patients suffering from diseases other than sprue. Animal experiments have been negative. Morbid examination shows hyperæmia of the œsophagus and small intestine, as well as ulceration, especially in the lower segments of the small gut. Similar ulceration may be present in the large intestine. The liver is invariably reduced in size. The pancrease is sometimes atrophic and fibrous; at other times it is normal. The onset of sprue is insidious, and the early stages may last for weeks or months. Generally the first definite symptom is soreness of the tongue. A few small rounded vesicles of whitish colour appear on the edge and tip of the tongue; later these break down, forming shallow ulcers with ragged edges, which persists for a varying period. At the same time there is a patchy desquamation of the epithelium which may spread over the dorsal surface, leaving an angry-looking, smooth, shiny surface. In the later stages the tongue presents a complete denudation of its epithelial layer and shows longitudinal and transverse fissures which bleed easily. Gastrointestinal symptoms dominate the earlier stages. Obstinate indigestion, distension and flatulence, and belching of gas occur during the whole course of the disease. Diarrhœa is present to a greater or less extent throughout. The stools vary in character, but often present their characteristic appearance. Sallowness and definite pigmentation come on; the skin shows atrophic changes and becomes dry and shiny. The general aspect of the patient alters and he becomes listless, depressed, and anxious. The temperature, blood, and urine show no changes. Sprue needs to be diagnosed from pellagra and from pancreatic disease. From the latter, diagnosis may be extremely difficult, especially as there is some probability that the pencreas is actually implicated in sprue; from pellagra the differences in the skin changes offer the most certain distinguishing features. Sprue may be fatal; if contracted late in life it nearly always is so, but early cases with suitable care, and especially by removal from the endemic area, may be cured. Treatment by drugs is disappointing; emetine and collosol argentum have been tried. Dietetic treatment is required. In the early stages a rigid milk diet is the best, and an ampler diet must be governed solely by the general condition and bowel activity of the patient.—The *Lancet*, April 14, 1917.

The Ankle-Jerk.

The ankle-jerk is one of the physical signs that does not receive the attention to which it is entitled. Temporary Surgeon Hildred B. Carlill, neurologist to the Royal Naval Hospital, Haslar, has recently published two papers in which he shows how serviceable this deep reflex may prove in diagnosis. The ankle-jerk is tested in the following manner: The patient kneels upright with both legs on some soft substance, such as the seat of an armchair, with his ankles projecting from it. The examiner squeezes the calf muscles to make sure that they are relaxed; complete relaxation is shown when this action produces extension of the ankle-joint. With one hand the examiner next supports the sole of the foot, pressing it gently forwards. This causes the tendo Achillis to be put on the stretch. The tendon is now smartly struck with a rubber-topped percussion hammer. In health the blow causes an immediate contraction of the calf muscles, with extension of the ankle. This reflex is present normally in all healthy people, and can be obtained without removal of the shoes; in advanced age it may sometimes be difficult to elicit. The muscles concerned in the production of this reflex are the gastrocnemius and the soleus, chiefly the latter. The centripetal path of the impulse which produces it is by way of the sensory fibres of the posterior tibial, internal popliteal, and great sciatic nerves, through the last lumbar and upper two sacral nerves to the cord. The contrifugal path from the cord to the muscles concerned is by way of the same nerves. The jerk itself depends on a direct mechanical excitation of the muscles, which are normally maintained in a state of tonus by reflex influences. The ankle-jerks are absent in numerous abnormal conditions or general disorders, such as spinal anaesthesia, narcosis, coma, great fatigue, or pneumonia. They are also absent in cases in which the integrity of the reflex arc (at the level of the third sacral segment) is impaired at any point: in injuries or myopathies affecting the gastrocnemius and soleus muscles, for example; or in affections of the peripheral nerves concerned; or in certain diseases of the spinal cord, meninges, and brain. In the course of an examination of 1,052 officers and men on one of His Majesty's ships, Dr. Carlill found total absence of one of both ankle-jerks in 15 instances only. In 49 of the men "reinforcement" by the methods usually employed when the knee-jerk is being tested was found necessary, and it is noted that occasionally the outer side of the tendo Achillis is more responsive than the inner. Of the 15 abnormal cases 3 were the result of infantile paralysis, 2 of sciatica, and it was thought that early tabes dorsalis accounted for the abnormality in several of the others. It is pointed out that the calf muscles may contract and produce an ankle-jerk when struck in many of the cases in which the tendo Achillis jerk is absent. The general conclusion reached is to the effect that the best known and most commonly tested tendon reflex is still the knee-jerk, "though the Achilles-jerk," to quote Ferrier's words (1906), "is of equal or even greater importance" The *British Medical Journal*, April 28, 1917.

School Reform in the Future.

A memorandum has been issued by the Child Study Society upon the educational principles which should direct future school reform, in which the importance is pleaded of basing educational methods on sound child-psychology, paying attention to emotional, moral, and æsthetic activities. The ideal curriculum, says the memorandum, should consist largely of life-sustaining occupations with more and more intellectual studies grouped around them, instead of the education being directed towards the general training of abstract faculties. Children should at school do necessary, and therefore to them interesting, work as well as satisfy their intellectual curiosity. This need of children to be interested begins to be marked at the stage between babyhood and school-age proper—i. e., about 6-8 years of age—and specialists and psychologists are asked to devise an educational syllabus fitted to this transitional period, when individual freedom begins to clash with the self-control demanded for school-life. The recognition of the child's outlook and the introduction of topics of instruction at the moment appropriate for the co-operation of the native instinctive impulses have in considerable measure arisen from the mutual efforts of the scholastic and medical professions, and owe much to pioneer work among defective children. The further development of the new pedagogy is mainly a task for the teacher, and will involve patient and carefully correlated experiments. The memorandum urges the promotion of research in education by the provision of the necessary facilities and financial assistance, and by the appointment of a strong Educational Research Board to assist and co-ordinate the work. It points out that such a board could be constituted on similar lines to the Medical Research Committee. Much individual research is actually carried out the results of which remain unknown save in local circles, while its application and value suffer from lack of facilities for discussion prior to publication. Were experimental and observational schools or classes to be established both in their educational and medical bearings, many problems could be considered, when results might be worked out under competent control. The problems of child-study may be essentially for the scholastic profession, but it is most desirable that the activities of the educational medical officers should not be confined entirely to questions of the health of individual children. They should embrace the wider range of educational hygiene, and we are glad to know that many of these officers are showing practical agreement with this view. Such practical child-study is essential to progress, and the results of the investigation of abnormal children in the past have been so fruitful as to promise well for the future, particularly if attention be paid not only to the phases of intellectual development but to the early stages of emotional and volitional life. Coördination of research, as well as wider spread of knowledge of results already achieved, is the great move that should now be taken. There should be opportunities for discussion and for the wide circulation of research in connexion with child-study and education. A central board, such as the memorandum desires, could not only suggest general topics, but also determine in broad outline the necessary procedure, issuing directions on lines which could be followed with a minimum expenditure of time. Uniformity of effort, which is at present wanting in official returns and reports, whether on educational progress or medical inspection, would thus be secured. So far as the strictly medical side of child-study is concerned, there is need for facilities rather than for a special staff. An allowance of even a session a week for approved research, to be carried out on previously defined lines, would enable many problems to be solved, and would give an interest and zest to an occupation which on its routine side is monotonous for many whole-time officers. The establishment of further bonds of interest and opportunities for mutual work and discussion between the doctor and the teacher would be to the advantage of both and of profit, most of all, to the child.—The *Lancet*, May 5, 1917.

One Danger of a Great Army.

In the glitter and enthusiasm of military activity, in the gathering together of young men to make an army, in the concentration of recruits and training camps, one is apt to forget an intensely human side, the purely animal nature of which is the main deterrent from its public discussion. In all that we hear from the bettlefield, in all that we read of wounds and death, of victory and defeat, nothing appears in the public press about the venereal hospitals. In all the newspaper and magazine reports which told us what a splendid sample of an army we had sent to Mexico, not one word was said of the number of cases of venereal infection which, in spite of all reasonable precautions, ran well up into the thousands upon thousands and were brought back from the Mexican Border to be multiplied broadcast throughout the land; and when this hideous fact was presented before a medical gathering in a Texas city, it was made a subject for jest among the physicians of the audience.

Let this appeal directly to you, Doctor. Perhaps your son will be drafted; with your knowledge of what syphilis usually, and gonorrhœa often leaves in its wake, can you laugh if your son gets infected; Can you remain indifferent if some one else's son infects your daughter? These are bald, crude, unvarnished thoughts. Have you done your part to prevent the venereal peril in our own armies—are you co-operating in any way with the efforts of the Council for National Defense to prevent a great wave of veneral disease sweeping across the country and adding its millions to the millions already diseased? Use your influence in the community and explain to your boy and others what paresis, locomotor ataxia, pelvic abscess, ophthalmia, and a few dozen other trifling consequences of youthful indiscretions mean. It is part of "doing your bit."—*Long Island Medical Journal*, June, 1917.

The Sanitation of Public Buildings in the United States.

The benefits that accrue to the United States from having an organised body of medical health officers united into a Public Health Service manifest themselves in diverse ways. For the service has its own inspectors, bacteriologists, laboratories, and chemists, and appears to be hampered by no limitations of scope. It was this service which organised the campaign against ground squirrels in California when there was fear of plague, and which extinguished the now forgotten charlatan Friedmann, who tried to exploit a turtle-grown tuberculin. The latest field of action reported is the sanitary inspection of public buildings in Washington, D.C., the results of which are set out by Dr. J. R. Hurley, of the United States Public Health Service, in a recent issue of the *Military Surgeon*. We learn that in 1912 the officers of the public Health Service were ordered regularly to inspect all Government buildings in Washington except those of the Navy and Army. Some of these are museums and historic buildings visited by large numbers of people, some are mere offices; they are very various and their management differs accordingly. From the accounts given it is obvious that practices vary, but principles emerge, and to these we direct attention. Thus the best ventilation is held to be by the double supply and exhaust system. Usually the office windows are opened for five minutes in the middle of the morning and afternoon, the staff during these periods "stirring around," Desk fans are advocated and steam heating, the resulting dryness of the air preventing inconvenience for the high temperature reached, which is no less than 78° F. To us it appears no wonder that ice-water is freely supplied. The optimum is considered to be reached at lower temperatures with 76 per cent. relative humidity. Indirect electric lighting is preferred because of freedom from glare and distinct shadows. A cream-coloured ceiling and light shades of buff or green flat-surfaced paint that can be washed are recommended for walls. The Public Health Service makes itself responsible in a detailed way for the lavatory and similar accommodation of employees, and in the Government Buildings at Washington these things appear for the report to be carefully watched. Every Government employee is provided with a clean individual towel once a week, while hot water, liquid soap, and paper towels are in use in the lavatories. Rest rooms for women are fitted up in practically all the buildings where women are employed, sometimes with a matron in charge, and sanitary towels are supplied by automatic machines or otherwise. Stress is laid by the Public Health Service on orderliness of offices. The disorderly office, says the report, cannot be cleaned—papers on the floor cannot be disturbed by the cleaners for fear of loss. Books and papers for record are therefore to be sent to filing rooms promptly, and all coats and hats to dressing-room. All unnecessary pictures are prohibited and the office furniture must be made to stand on feet to permit cleaning underneath. This careful inspection of Government offices at Washington raises the standard of welfare of Government employees, and should improve the whole standard of working office conditions throughout the United States. Official life in England is now very crowded, and we recommend the idea of the general inspection of public offices to the Local Government Board.—The *Lancet*, May 12, 1917.

Gleanings from Contemporary Literature.

THE VACCIN TREATMENT OF PNEUMONIA NOT SUCCESSFUL*

BY HERBERT C. CLAPP, M.D., BOSTON.

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Nothing whatever in this paper must be construed as an argument either for or against vaccin treatment in general. Consideration is here given only to its results in acute pneumonia. This disease has now been treated either by serum or by vaccins, by some who have been more or less enthusiastic in their use, for quite a number of years. Up to this time I have refrained from expressing an opinion on the subject in public for several reasons. One of these reasons for not being too hasty is the desire to be perfectly fair by not combatting prematurely the claims of a new and honest aspirant for the favor of the medical profession, an aspirant whose claims on the surface seem rather plausible. Too much and too early opposition to a new method or system is often unwise, reminding us of Gamaliel's advice to let the apostles alone. "For if this counsel or this work be of men, it will come to naught, but if it be of God, ye cannot overthrow it."

Another reason is that it is not easy, as will soon appear, to form a satisfactory judgment as to the efficacy of any new treatment in pneumonia; and still another is the acknowledged difficulty of proving that any given new treatment is *not* efficacious, even if the writer so believes. Positive evidence, even in a few cases, seems to appeal to some people far more than negative. Of course, if enough of such positive evidence is obtained, the question is affirmatively settled. But the more one studies into this matter, the more he is impressed and amazed, owing to the great intricacy of the subject, at the really very large number of positive results he finds necessary to establish a verdict. How perfectly ridiculous then it is for one to announce his decision after the observation of a few cases only! Indeed, to my knowledge, in one instance a physician was thoroughly and enthusiastically converted to the vaccin treatment of pneumonia by the recovery after it of one single patient, who had been very sick. The prescriber was a man of large experience too; and it seems strange that he would have forgotten what is so well established, that there is perhaps no other disease where it is possible for a patient to be so desperately sick and yet recover. And this holds not only under what many of us would call good treatment, but also under indifferent or bad or even villainous treatment, or under absolute neglect.

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* Read before the Hughes Medical Club.

All physicians of extensive practice must have had more or less of such experience. Many years ago I learned the folly of giving up a desperate case of pneumonia too easily, after seeing such a one recover now and then, either in my own hands or, after my unfavorable prognosis, under the care of another physician. I have often thought of the remarkable recovery of a pneumonia case reported by the elder Dr. Austin Flint in his fascinating way a long time ago, where an entire lung was involved and the patient situated under as unfavorable hygienic conditions as could well be imagined.

"The patient was attacked when working alone in a shanty, there being at the time two inches of water on the ground. The case occurred during the winter season in the swamp near New Orleans. After the attack he was unable to leave the bed for any purpose for a week, and during this time he was entirely alone. He had a quart of brandy which he drank during the week. His habits, as he stated, were temperate. At the end of a week he was visited by some one, (not a physician), who gave him thirty grains of calomel. After this he remained alone for ten days. A friend at length came to him, gave him some doses of quinia and removed him first to his own house, and afterward to the Charity Hospital of New Orleans. The physical signs, on his admission into the hospital, showed pneumonia affecting the whole of the right lung, and resolution progressing. He remained in the hospital six days, convalescence going on rapidly, and at the end of that time he was well enough to be discharged."

Of course, this was a very exceptional case. However, if, instead of calomel and quinia, his good Samaritan had given (pardon the anachronism) a hypodermic of fifty millions of plain stock pneumococcus vaccin, not to mention the polyvalent or autogenous kinds, or had administered any other remedy, how much proof in such an isolated case would this have been of cause and effect?

I believe that the vaccin treatment of pneumonia after the fair trial that it has now had, cannot be called successful; and that it had therefore better be adandoned by the great majority of us, as it has been already by many, as sometimes dangerous, and generally as worse than useless, worse because encouraging a false dependence on it, and thus tending to paralyze our further efforts

Those who favor this treatment have not sufficient statistical evidence to prove their point. The burden of proof always rests on the advocates of a new method. Although I have diligently searched in a good medical library the literature on the subject which has been accumulating for several years past in books and medical journals, yet I have failed to find any adequate statistical evidence at all worthy of the name, which has been brought forward by those who believe in vaccin, mostly because such small numbers are dealt with.

By all odds the most powerful argument, in my opinion, in favor of this treatment, which has appeared in the medical press (Boston Med. & Surg. Journal, Nov. 11, 1909) is in the paper of our able fellow-citizen, Dr. Timothy Leary, who reports eighty-three cases with a mortality of 9.7 per cent. (thirty-four of these patients being alcoholics with a mortality of 17.7 per cent.), and yet Dr. Leary himself modestly and honestly adds:

"We are not attempting to draw definite conclusions from this series, because we recognize the futility of deductions from so small a number of cases of a self-limited disease, in which sudden critical changes in the clinical picture are frequent." To increase his statistical evidence, therefore, and to place it on a firmer basis, Dr. Leary devised a very ingenious scheme which he described at the end of paper referred to, in which he offered to furnish on application, entirely free of cost, to every registered physician in Massachusetts, (of whom there are about 6,000), subject only to the reasonable condition of answering a few questions on blanks furnished, sufficient vaccin, both stock and autogenous, with full instructions for their use, for the treatment of as many patients as each physician wished. He also proposed to submit the statistics thus gathered to a committee of the Massachusetts Medical Society for consideration and report. Just how much vaccin was thus furnished or to how many physicians, I know not, but from what I have heard I have no doubt the numbers were large. Although some of us have been waiting patiently for it for seven years, yet no report, so far as I can learn, has ever been made. Is it unreasonable to suppose that no report was made because the results were not favorable to Dr. Leary's contention? If they had been as good as the eighty-three cases reported in the original paper, would they not also naturally be reported?

I have also found scattered through the literature of this country and of Europe other articles espousing this cause with more or less enthusiasm according to the temperament of the writer, but dealing with numbers of cases so small, even if those of different writers should be added together, as to be entirely inconclusive. Some of these articles bear internal evidence possibly of a desire to make a favorable showing at any rate; and some, like those of Dr. Nathan Raw of Liverpool, who is a believer in the treatment, show a very fair spirit. In the London Lancet of March 23. 1917, we find that Dr. Ray, in reply to a cirticism of his arguments by Sir Douglass Powell, rejoins:—"The cirticism of my mortality table is quite warranted and quite admits that a death rate of 16 per cent. based on 207 cases of pneumonia treated with vaccin is not only great advance on the results obtained by other methods of treatment. I would, however, like to express my belief that in the future with further experiments and knowledge of vaccin this death rate will be still further reduced."—We need not add that a hope or wish or even a belief falls somewhat short of a demonstration.

In a previous article in the Lancet of March 9, 1912, Dr. Raw saw no effect in hastening the appearance of the crisis or in shortening the duration of the disease, although there was frequently a temporary sudden drop of about two degrees after an injection. He acknowledged that a vaccin to be potent ought on strictly scientific grounds to be *autogenous*, that is, to be prepared from the sputum or blood of the patient himself; but claimed that this is a matter of great difficulty, as the disease, being of such an acute and short duration, has either subsided or terminated fatally before the vaccin can be got ready. Another difficulty (March 23) lies in the fact that, as there is often no sputum during the first two or three days, the material for the culture could only be obtained at an early date by puncturing the lung, which in the opinion of Sir Douglass Powell, would be done only at some hazard. Later (London Lancet, April 3, 1913), Dr. Raw reported a mortality of 13 per cent.

Nor are all of the published reports of experimentation favorable. The New York Medical Journal of February 10, 1912, p. 301, abstracts from an article in the Glasgow Medical Journal of Jan. 1912 as follows:—"Charteris reports nineteen cases from which he draws the following conclusions: 1st, The administration of a multivalent stock pneumococcus vaccin had no marked effect upon the subsequent course of the disease. 2d, The mortality in the vaccin series (21 per cent.) was slightly higher than in the control series

(20 per cent.). 3rd, The early administration of vaccin did not abort the disease nor prevent complications. 4th, Complications were relatively frequent in the vaccin series; one case of meningitis, two of empyema and one of hyperpyrexia."

Human nature is such that we are far more likely for several reasons to report our successes or our curiosities than our failures. No one will contradict this statement, and it is therefore unnecessary to dwell upon it. Even if we disregard the idea that a failure is not flattering to our ability or intelligence and that, therefore, we shrink from publishing it; if we are meeting with success, or think we are, we are encouraged and impelled to go forward and pile up the proof; whereas if failures confront us, our courage wanes and we give up the task.

I know of a number of cases where physicians have tried the vaccin treatment in pneumonia and have given it up without making a report, because their results were not fevorable. I am in this category myself. I have also talked with physicians connected with many of our large hospitals, and only very rarely find one who has now any faith in this treatment. I cannot learn that it is now used at all in our Massachuetts General, Boston City, Peter Bent Brigham and many other hospitals.

I have myself seen many cases of pneumonia in private practice in consultation with physicians where the vaccin had already been tried, early or late, in small or in large doses, either as the result of Dr. Leary's offer or otherwise, and it does really seem to me as if in such cases there had been an extra large mortality; surely no diminution. Objection might be made that cases in which consultation was held would naturally be of a more severe type. There is undoubtedly something in this idea, but not to the extent imagined; because as most consultants are aware, some physicians, conscious of their own resources, never have a consultation if they can possibly avoid it, no matter how dangerous the case. When one is held, they are forced to it by the family or its friends. With all grades between, some physicians go to the other extreme, and, recognizing that even the mildest case of pneumonia may sooner or later assume threatening proportions, they are only too anxious, soon after the diagnosis is made, to call some one with whom they may divide the responsibility, if things go wrong. Many of these cases might do well anyway; but the conscientious attendant feels relieved, and the family is often better satisfied, even if implicit confidence if felt in their regular physician. So that after all it does not necessarily follow that consultation cases must be more serious than others.

If the results of vaccin or serum in pneumonia could have come anywhere near the really marvellous effects of the antitoxin treatment in diphtheria, the whole world would have been persuaded long ago; but the serum has been tried and found wanting, in spite of seeming encouragement at first, and the vaccin acts on an entirely different principle, as Leary happily and concisely puts it.

"Diphtheria antitoxin (serum from immunized horses) acts immediately to neutralize toxins with which it comes in contact in the bodies of patients into whom it is injected. It calls upon the patient for no assistance in overcoming the poisons of the bacteria. He is a *passive* agent. Vaccins, on the other hand are in themselves incapable of directly influencing the bacteria or othir poisons. Their function is to stimulate the immunizing machinery of the individual to react and to produce substances (opsonins) which will influence the bacteria. The patient then plays an *active* part in the process, and if a success is to be obtained, he must have sufficient resisting ability to react; and therefore vaccin is useless in moribund patients, or in those too sick to react."

He might have added that in a bad case, where this reactive ability is very slight, an attempt to stimulate it to react against its enemy by the nagging opposition of a vaccin, might utterly exhaust and overwhelm the organism and so aid in accomplishing defeat instead of the intended victory; whereas possibly the slight reactive ability unopposed might have conquered. The pneumococcic vaccin would thus join the forces of the pneumococcic infection against the welfare of the patient, and become really a dangerous agent. See Dr. Parks' opinion later and also Dr. Yeo's.

Although this is a paper on vaccins, yet occasional reference will be made to the results of serum treatment, as the subjects are so closely related.

Probably one reason for the failure of the serum treatment in pneumonia is, as stated in the Lancet for March 9, 1912, that it has been found extremely difficult to prepare a good serum from the pneumococcus on account of the insusceptibility of animals to true pneumonia.

I have said that the number of cases so far brought forward to prove the efficacy of vaccin treatment in pneumonia is too small, (even if we add the groups all together), to have much weight. It reminds one of the statistical tables sometimes compiled by boards of State medical examiners, or other medical bodies in announcing the results of examinations for registration as physicians. In stating the number of applicants who passed, under the headings of the medical school from which they graduated, if fairly large numbers are dealt with, the results are comprehensible; *viz.*, forty passed out of fifty, or 80 per cent. But if only one graduate of a school is examined, and he passes, then 100 per cent. of all applicants from that school pass, and the inference is that that school is perfect. But if the applicant from the same school is rejected, either from poor scholarship, or from length of time since he graduated, or from sickness or from stage-fright, or other cause, then 100 per cent. of all applicants from that school fail, and the inference is that that school is "no good," and should be at once closed up. How grotesquely absurd is such statistical evidence!

This statement as to small numbers might apply to any disease; but when we come to *pneumonia*, of all diseases, we have some especially good reasons for demanding large numbers, if we are to place any dependence whatever on statistics. Why? Because pneumonia, perhaps more than any other disease varies so much in its severity and mortality according te different circumstances, the influence of which is apparent when we make a careful study of the natural history of the disease, irrespective of treatment.

If our figures were gathered in some years or in some seasons or in some epidemics, under any treatment or under no treatment, they would be better than in other years, in other seasons or other epidemics. Likewise, if they were made up in a Home for Aged Couples, they would be very diffierent from those in a Children's Hospital. In fact, pneumonia in the very old or in the very young differs so much from pneumonia in common adults as to be almost a different disease. The results in a Charity Hospital or in one for paupers would be far different, even under the same treatment, from those in private practice among the well-to-do, and so on. Among alcoholics the death rate is always very much higher, and among regular army soldiers it is always very much lower than the general average. It is higher for women than for men and for negroes than for white people. Complications also influence the death rate. Perhaps 10 per cent. of the cases of pneumonia by common consent are caused by other organisms than the typical pneumococcus and with a differing mortality. Among these organisms are the streptococcus pyogenes, staphylococcus pyogenes, and the following bacilli: influenza, Friedlander's, pestis, diphtheria, typhosus, coli communis, tuberculosis, and the micrococcus catarrhalis. Even when the pneumococcus is the sole cause of pneumonia, there is acknowledged to be a difference in mortality according to the particular strain or degree of virulence of the micro-organism.

All these and many other influences so affect the death rate, that in order to determine the agency of any *therapeutic* means, these influences must be blended and neutralized and averaged by incorporating very large numbers.

Now for a few figures to substantiate what has just been said. First, as to age. According to the U. S. Census Report for 1900, (quoted by Lord), the death rate of patients between 15 and 45 years of age is 100 in 100,000 of the population. Between 45 and 65 years it is 263 in 100,000, and over 65 years it is 733; showing a perfectly tremendous increase as age advances. According to Frankel, from the 6th to the 20th year the mortality was (omitting fractions) 6 per cent., in the twenties it was 14 per cent., thirties 26 per cent., forties 39 per cent., fifties 43 per cent., and over 60 years it was possibly 65 per cent.

Then as to variation in years or seasons. Of 2025 cases at the Massachusetts General Hospital from 1897 to 1913, of which 25 per cent. died, the lowest mortality in any one year was 15.3 per cent. in 1906, and the highest was 31.6 in 1899, there being no important change in treatment. Many other figures can be obtained with a similar bearing.

In a paper by Townsend and Coolidge read before the Climatological Association in June, 1889, in which 1,000 cases at the Massachusetts General Hospital between 1822 and 1889 were studied, there was a mortality of 25 per cent.

Sears and Larrabee, among 949 cases (St. Paul Med. Jour. 1902) at the Boston City Hospital, from 1895 to 1900 inclusive, found a mortality of 35.9 per cent. Ashton & Landis (Amer. Jour. Med. Sci. 1905) among 991 cases in the Philadelphia General Hospital from 1897 to 1904 found a mortality of 53 per cent., but they claim that there were many aged paupers treated there.

Musser & Norris (Osler, vol. 2, 1907), dealing with large numbers, among 43,455 cases found a mortality of 21 per cent.

Wells (Jour. A. M. A. 1904) has collected from the literature the enormous number of 465,400 cases of pneumonia, with a mortality of 20.4 per cent.

Lord shows the influence of complications as follows:—Of 500 cases at the Massachusetts General Hospital the mortality was 24.4 per cent., but some of these were alcoholics, some had disease of the kidneys, heart or arteries, *etc.* If we leave these out, and also persons over fifty years of age, the mortality drops to 9.2 per cent. This might be called doctoring statistics, if done on purpose. And as to soldiers, Lord says, "The statistics given by Frankel for the Imperial Prussian Army indicate how low the mortality may be in healthy picked men. Among 85,000 cases occuring from 1878 to 1898 the mortality was only between 3.1 and 4.3 per cent. In the Austrian army from 1891 to 1896, 5.8 per cent., and in the French army [illegible]1 per cent."

Of course, this extra low mortality was due partly to the youth of the soldiers, and partly to the careful examination which has previously sifted out, as far as possible, all organic diseases.

When we are dealing with such enormous number as those gathered by Wells, almost half a million patients, who were treated in all sorts of ways, naturally the resulting 20 per cent. of deaths is only the broadest generalization expressive of the average death rate under all conditions. To make up this average there must have been many cases, the great majority of which died, as well as many other cases the great majority of which recovered, in addition to all grades between. It cannot mean that all the varieties and conglomerations of treatment were equally efficacious or non-efficacious, or that some methods were not very much superior to others. It would be an insult to human intelligence to suppose such a thing. It rather indicates that, as there was no Noble Grand Physician in Chief with his staff to compel all practitioners to adopt the same method of treatment, each acted for himself and the result was Babel which averaged up to 20 per cent. Even had there been this noble chief, all clothed with due powers to enforce his commands, who could say that the measures he ordered were really the most efficacious, unless he got his inspiration from on high.

In this twentieth century it would of course be impossible to make such an analysis of this half million of cases as to determine the relative efficacy of the different methods of treatment employed. But it is easy to see that, if it were possible, the proper way to go to work would be first to classify the cases into groups according to the influences already referred to in this paper and other influences, and then to apply our therapeutic yardstick to these different groups in succession. This would be the only fair way. In endeavoring to ascertain the value of any *new* treatment in pneumonia, a similar method of procedure should be followed; at first classifying into groups in a small way, and then enlarging the numbers, if the experiment offered sufficient encouragement.

This might be equivalent to dividing up the disease, acute pneumonia, for statistical purposes into quite a number of subdivisions, each of which for our purpose would constitute a different disease. One might be pneumonia in very young children, one in older children, one in adults in the prime of life, one in middle age and one in old age. One might be in the epidemic of five years ago, one of 10 years ago. One might be in soldiers, one in alcoholics, *etc.*, *etc.* Large enough numbers in each of these groups ought to be obtained to make the statistics worth while for comparison.

Naturally, it is absolutely impossible for us all to try every method or every remedy that is suggested, for their name is legion. The only way is for the preliminary testing to be done by committees, either voluntary or appointed. We are now hearing the preliminary report of the committee on vaccin in pneumonia. There has apparently as yet been no effort to classify it into groups, and even the total number of cases unclassified is confessedly small, and the majority of us are as yet unconvinced.

Until we can have further and more satisfactory statistical evidence, there is only one other court in which we can try the case, and in that court the verdict is often far from satisfactory. That is the court of experience and common sense, or whatever else you may call it. The term *tactus eruditus* illustrates the idea. In these days of laboratories and diagnostic instruments of precision many claim that the tendency is for the physician to become too much like a machine or the tender of a machine in a factory, and to lose some of his thinking powers, and his powers of critical analysis, for which the physicians of a former generation were famous. Not to go into this matter, it is undoubtedly true that some physicians more than others can in a sense apply the statistical method without having actual statistics at hand, when by the exercise of a cultivated judgment mixed with a little common sense they can resurrect from their cells of memory symptoms and results of treatment, (making allowance for the influences surrounding numbers of cases in their past experiences), to apply shrewdly to the present case, in an almost automatic fashion and one which they may be unable to explain in words. This much at least we ought to be willing to allow to the credit of the old medical worthies and not merely picture them as arrogantly strutting about with wigs and wise looks, and sucking gold-headed canes. Even if we of the present day can read the figures on a sphygmomanometer and take the opsonic index, we may not always be able to size up a case of pneumonia much better than they, and sometimes possibly not as well.

So then by the gift and exercise of a shrewd judgment of this kind, some of us may possibly be able to collaborate in our minds, almost unconsciously, enough facts from our past experience in many case to enable us to form an opinion, more or less satisfactory to ourselves at any rate, without written records, as to the relative value of different methods of treatment. Some have a great deal of this power, and some very little, and those who have the little may think they have the much, and vice versa, and we cannot always agree, and there must always be differences of opinion.

In the present absence therefore all sufficient statistical proof on a large scale of the efficacy of vaccin in pneumonia, I am inclined to trust to the mature judgment of a number of such able physicians of large experience, who have come to the same conclusions as myself; reserving the right to shift, if the future should offer as much proof as in the case of diphtheria antitoxin, which now seems very unlikely.

If the vaccin method had been the only aspirant for recognition, we might have afforded to devote more time to its investigation :- but until one spends hours and hours industriously delving into the secrets of this department of the history of medicine and going way back for years and years, not including the vagaries of prehistoric times, it is impossible to realize how many remedies have been lauded to the skies as wonderfully efficacious in pneumonia, and yet where are they now? Their advocates were often far more enthusiastic and certain of success than the modern pushers of vaccin; and yet one after another they have dropped out of sight. In most cases the modern medical student does not even know their names. A new aspirant should present better evidence of worth than they.

Now, going back to statistics, we ask: *How low should the mortality percentage be* in any new method, to persuade us that it is better than any method we already have?

That is a very hard question to answer. It should certainly be very far below 20 per cent. of a large total figure, because, as we have seen, in about half a million cases 20 per cent. is the average of good, bad and indifferent treatment, and the percentage of good must be considerably below this to balance some of the treatment which has been trrrible. More than that at the present time nobody can exactly say. Often at discussions at medical meetings much wild talk has been allowed, there being not set standard. After the mortality at one hospital of 65 per cent. has been admitted, another in great triumph claims superiority on account of a record of 35 per cent. At a medical meeting in Liverpool on Dec. 7, 1911, (Lancet, Dec. 23) Dr. N. Raw in a paper advocating the vaccin treatment in pneumonia reported a mortality of 16 per cent. Afterwards, the President, Dr. T. R. Bradshaw, quietly snubbed him by stating that he did not consider that the use of vaccin was attended by better results, because in 131 cases treated by himself by the ordinary methods there was a mortality of only 6.87 per cent.

Up to 1891, Petreson of Bucharest, often quoted, had treated 825 cases by enormous doses of crude digitalis, with a mortality of only 20 6 per cent.

In the N. Y. Medical Record of Oct. 26, 1912, p. 767, Dr. Thomas J. Mays of Philadelphia says that ice reduced the mortality to 2 to 4 per cent.

In various other places I have found a startlingly low recorded mortality for many other methods, the total number of patients not always being given. And yet nither ice nor these othor methods have produced a corresponding reduction of mortality in other hands, nor has their superiority been generally acknowledged in consequence. Some even go so far as to report 100 per cent. cured in spite of age, complications and other handicaps. For instance, among many other wonderful remedies which for a time seemed to promise remarkable results in pneumonia, Babcock (Diseases of the Lungs, p. 284) tells us of Liegel's report of 72 cases, from 16 to 74 years of age, treated by salicylate of sodium, and *all cured*, although eight had a complication of emphysema, six of heart disease, and a large number were chronic alcoholics.

Indeed, I myself well remember a physician, a nice old gentleman, who had had an enormous practice for many years, who died at a ripe old age, who was regarded in the community in which he lived as well as by his brother physicians as the soul of honor and integrity, and yet who solemnly assured me that he had never lost a case of pneumonia in his life. That statement has always been to me incomprehensible. With a practice as small as some have, it might have been said that he never had a case, or only a few. Even if his diagnosis had often been faulty, it must have been also often correct, for pneumonia in its typical form is an exceedingly easy disease to diagnosticate; and although he was educated at a time when physical diagnosis was not very thoroughly taught, yet in this disease the symptomatology alone is generally sufficient for an accurate diagnosis. By what name could he have called the disease from which most of us lose our pneumonia patients? Of what acute disease did many of his elderly patients die?

A devoted disciple of Isaak Walton, who loved dearly to fish and even more dearly to narrate with embellishments to gaping audiences his piscatorial exploits, meaning no evil, however, after hearing some famous predecessor of Billy Sunday, was converted and decided to turn over a new leaf. Henceforth he would not trust to his memory for the size and weight of the fish he caught, but would safeguard his statements with a brand-new and accurate pair of scales. But before he had a chance to use his purchase, the stork visited his next-door neighbor and the family, wishing to learn the weight of the new arrival, borrowed the scales, and to their surprise found that the baby weighed 49 pounds.

I have taken some pains to look through the literature on the subject of vaccins in pneumonia in recent books and medical journals, to ascertain the opinions of prominent physicians. Some writers make no mention whatsoever of vaccin treatment. A few references as samples, of those who do mention it, follow.

The latest book on Diseases of the Bronchi, Lungs and Pleura, written by Dr. F. T. Lord, 1915, on page 224 says: "There is thus far no specific treatment for pneumonia. Drugs, immune sera, vaccins and leukocytic extracts have not yet been shown to be of definite value. . . . The *prevention* of infection by the use of dead or living organisms, as vaccins, is already established for certain diseases; but vaccins have never been shown to be definitely effective against an existing infection."

In Osler & McCrae's System of Medicine, 2nd edition, 1913, in eleven large pages devoted to the treatment of pneumonia there is only one single line about its vaccin treatment, as follows on page 276: "Vaccin and leukocytic extracts have not proved definitely benefical." On page 214 we find: "The attempts to establish an efficient serum therapy for lobar pneumonia have so far failed of of satisfactory results." But when this volume was published, Osler was over sixty years of age.

In their smaller book, Osler & McCrae's Practice of Medicine, 8th ed., 1912, p. 79 is found:

"Many trials have been made of the curative value of antipneumococcic serum in the treatment of pneumonia, but thus far it has not been shown to influence in any marked degree the course of the disease in man. . . . Vaccin therapy is on its trial in this disease, and the results so far have not been very satisfactory."

Also in Osler, on page 100: "Anders' analysis of the reported cases do not give a very favorable impression of the value of the serums at present in use. None of these has proved its value. Nor has the vaccin treatment been shown to be of positive worth."

In a large book, the fifth edition of which was published in 1914 by Lea & Febiger, *Pathogenic Micro-organisms*, by Dr. W. H. Park, Prof. of Bacteriology and Hygiene in the New York University and Bellevue Hospital Medical School, and his assistant Dr. A. W. Williams, on page 219 we find:

"The giving of bacterial vaccins during infection is adding more or less poisonous proteins, and unless the body tissues respond to produce antibodies, *harm rather than good is obtained.* Experience has taught us that those who become infected are less able to produce antibodies. In such diseases as pneumonia . . . and other general infections due to different micro-organisms, the treatment by bacterial vaccins has not met with sufficient success to be recognized by most careful observers. *Here, an overdose of the foreign more or less toxic protein should be carefully avoided.* . . . The exaggerated claims of certain manufacturers (of vaccins) must be considered as wholly unwarranted."

"Although, during the past few years many thousands of cases of infection have been treated by vaccins, there is at present considerable difference of opinion as to their value. The majority of observers agree that it is in subacute and chronic infections that vaccins give the best results."

On page 272: "The use of injections of dead pneumococci in pneumonia and other acute pneumococcic inflammations has not been followed by appreciably beneficial results in those cases which have come under our observation."

There has recently appeared (1915) an exceedingly interesting new book edited by Dr. A. R. Short, assisted by various English collaborators, entitled An Index of Prognosis, being a companion to the valuable Index of Treatment and Index of Differential Diagnosis already published in this country by Wm. Wood & Co. In this book the article on pneumonia was written by Dr. Arthur Latham of London, an able and voluminous writer, who has for a number of years been a great enthusiast and believer in the vaccin treatment of a number of diseases; and yet after studying the end-results of treatment in pneumonia, on page 406 he says: "Different forms of treatment, such as the use of vaccins, the systematic employment of digitalis, or the use of various other methods, have *not* been shown to have any markedly different results in a sufficiently large number of cases."

In the companion volume, *Index of Treatment*, by various writers (English), 1908, p. 657, in the article on pneumonia by Dr. W. J. Hadley, Pathologist to London Hospital, it says:

"Its use (serum) in patients suffering from the disease is rendered difficult by the fact that each individual breeds his own particular strain of pneumococcus. Bearing in mind this fact, *viz.*, that A's pneumococcus does not protect B and that it therefore becomes necessary to cultivate an individual's own organism for his own cure (a process which takes about 14 days), it is obvious that this form of treatment will become more useful in lingering cases, or for some of the more chronic complications. . . . and that there would be no time to call on its aid in the ordinary case, swiftly culminating in death or in resolution."

In a book of 900 pages by Prof. John A. Kolmer, M.D., on Infection, Immunity and Specific Therapy, Philadelphia, Saunders, 1915, all that can be found on our subject is in one sentence in page 661: "Autogenous vaccins may be of value in the treatment of *delayed resolution* in lobar pneumonia, cultures being secured by puncturing the lungs; usually several organisms are found and a mixed vaccin may be given." On page 754 he says "Acute lobar pneumonia, with its clear cut clinical course, unsatisfactory and difficult treatment, uncertain prognosis and high mortality, was one of the diseases in which the earliest efforts were directed towards discovering a specific serum therapy. Since the pioneer work of the Klemperers, in 1891, numerous investigators have prepared serums, that have yielded either indifferent results or proved beneficial in but a limited number of cases, so that there has been no well established form of serum therapy."

In applied Immunology, by B. A. Thomas and P. H. Ivy of Philadelphia, published by J. B. Lippincott Co., Philadelphia and London, 1915, on page 254, we find:—

"By virtue of the theory of biological therapeusis, little should be expected from bacterial inoculation in the acute stages of infectious disease. Indeed, they may exert an evil influence." (They also denounce "phylacogens" as unscientific and dangerous.)

Floyd and Lucas of the Dept. of Bacteriology in the Harvard Medical School, in the Journal of Medical Research, Sept. 1909, said: "In spite of the great amount of work done in the study of the processes involved in meeting infection and the establishing of immunity, actual advances in serum therapy have been disappointing. The successful production of antotoxin for diphtheria and tetanus in which strong diffusible toxins play the major part in the disease, are in great contrast to the numerous failures when the same methods have been adopted in the treatment of other diseases."

In the very valuable and much-read book on Diseases of the Lungs written by Dr. Robert H. Babcock of Chicago (D. Appleton & Co. 1907), on page 282, he says: "There can be no greater confession of our inability to cope successfully with desperate cases of acute croupous pneumonia than is furnished by the long list of remedies proposed for its treatment. When we consider also that pneumonia is a self-limited disease, we cannot fail to be impressed with the belief that the results claimed for certain modes of management may with propriety be attributed to the vagaries of the disease. It is to be feared that only too often the advocates of special remedies are misled by their enthusiasm and their desires."

He then speaks of several methods of treatment, endorsed by physicians of great prominence in different parts of the country, "all of whom thought they saw very unpromising cases of pneumonia recover under the use of these agents in a way scarcely possible without them. Not only did the high fever fall within a day or two after instituting the treatment, but signs of resolution appeared and the course of the disease seemed to be shortened. . . . They were extensively used at first, but in the last two or three years have attracted but little attention. As before remarked, it is easy to attribute to medicine what may be merely the result of nature's efforts at resistance, yet it should always be remembered that pneumonia is a disease full of surprises." As to the serum, he says: "Such a serum is now prepared by certain well-known manufacturing chemists, and by a least one house is widely advertised as efficient against this dreaded malady. Hopes thus aroused are, however, not sustained by actual results and by published figures."

In Yeo's widely circulated Manual of Medical Treatment, vol. 1, p. 643, London, 1909 we find :—

"We need and here enter into detail as to the attempts that have been made to obtain a specific serum for the cure of pneumonia. Most authorities are agreed that they have not been successful.

Musser & Norris observe on this subject that 'various serums have been tried, but their use, so far as curative effect is concerned, has been valueless. . . . Reports of individual observers have in some cases been very interesting, but when a large number of cases is reviewed, the results are unsatisfactory.' They also point out that it is doubtful if a protective antitoxin can be produced, 'owing to the low vitality of the pneumococcus in artificial inoculations,' and that there is *absolutely nothing which can be termed specific* in pneumonia, as it may be caused by a *variety of different organisms*, or by mixed infections.

"Notwithstanding the good results reported by some enthusiasts, still less can be expected from *vaccin* therapy. In a disease which is induced not only by different organisms, but also by different strains of the same organism, it is clear that the vaccin must be prepared from the patient's own organism. Such a lengthy procedure will, necessarily in the large majority of cases, be forestalled either by the spontaneous recovery or by the death of the patient. For our own part *we should not consider it justifiable to submit to the increased danger of the 'negative phase' a patient whose life is already in extreme jeopardy,* for it is only in grave cases that there is any call for such a procedure as vaccin. If there is any field for its use, it must be in the occasional sequels of the acute attack, such as *delayed resolution*, for which as yet our therapeutic resources are inadequate."

Here I feel obliged to stop my quotations for the present, not because there is nothing more to quote, but because the lack of further space forbids.

One argument frequently advanced by some advocates of vaccin treatment contains considerable sophistry. They point to the reduction of temperature which sometimes follows an injection. This, however, does not always happen, and when it does, the fall is generally temporary and soon rises again. Even if the crisis is oftenest to be expected on the seventh or fifth day, yet it sometimes occurs sooner, without regard to treatment, and it is seen on the fourth or third day, and some ever think, rarely on the second. Physicians who forget this, might call an early crisis the result of the vaccin. Some without claiming the influence the crisis, think that the temperature runs lower from day to day as a result of the vaccin. I well remember the case of a lady over fifty years of age to whom I was called about two years ago in consultation on the evening of the first day, and who then had a temperature of a little over 105 degrees. The attending physician wanted her to have vaccin, but arrangements could not be made for it on that night, and so it went over until the next afternoon. Meanwhile, however, the temperature had dropped several degrees and remained throughout much lower than it was at the beginning. If the vaccin could have been procured earlier, the drop might have been attributed to that.

Besides, even if vaccins do sometimes produce a lower range of temperature, this does not prove that the patient is any the better for it. Years and years ago some physicians tried by the coal tar derivatives and other antipyretics to force down the temperature, as now in another kind of cases some are trying by drugs to force down the figures indicating high blood pressure. The only satisfaction comes from reading the charts. The patients themselves are only the worse for it.

The fact is that a good physicians likes in pneumonia a temperature pretty well up, provided that it is not too high, and he considers it a good sign. We expect a healthy young robust adult to do well if his temperature goes up to 104 or 105 degrees. It shows that he has vitality enough to react well against the invasion of the pneumococcus. But when a feeble old man or old woman cannot get up enough spunk to raise the temperature to 100 degrees, we think they are putting up a pretty poor fight and making a pretty bad showing. It is an unfavorable sign.

One effective reason for the continuance of vaccin therapy lies in the self-interest of certain large manufacturing chemists, drug houses and others who profit financially by the sale of vaccins, serums and other products of a similar nature, sometimes, however, sold under other and different names. These people flood the mails of physicians with circulars highly eulogistic, and their accredited representatives haunt doctors' offices with silver-tongued oratory and persuasive arguments as to the wonderful success of their products, which they try practically to force physicians to use. Each one is a Gamaliel, at whose feet the humble and trusting doctor should dutifully sit, taking his word for gospel, and trying to forget that therapeutic suggestion and the hope and confidence born of enthusiasm for a cause may perhaps account for a part of the wonderful successes the agent so glibly describes.

Some firms, however, form a worthy exception, and simply stand ready to sell whatever products they are requested to prepare by clinicians, who assume the whole responsibility of deciding whether the products have any practical value or not.

Specialists in pulmonary tuberculosis, cancer and diphtheria strongly urge the adoption of therapeutic measures in their respective diseases at the earliest possible moment. So do the advocates of the vaccin treatment in pneumonia. They cannot say too much about the necessity for gaining *time*. Also considerable evidence has already been presented in different parts of this paper and in different connections that a stock vaccin, although it answers the time demand and could be *promply* used, is nevertheless not satisfactory and dependable in pneumonia.

And so we are driven to believe that the autogenous vaccin is what we want and what we must have, if we use this method of treatment. But, unhappily for our hopes and aspirations, when we consult a skilled and careful bacteriologist, he tells us that to make a thoroughly reliable autogenous vaccin, one that he is willing to stand behind, causes a delay of several days, sometimes up to ten or more, by which time the patient might be either convalescent or dead; and that if we in our haste try to use a more rapid method, it may possibly succeed, but very likely may fail. Even then, if we use the rapid method, counting also the time necessary to go back and forth between the patient and the bacteriologist if, like most patients he is not in a large hospital, and especially if the patient lives at a distance, and if the physician has anything else to do, the so called more rapid method with its imperfections also takes too much time.

As the question of the amount of *time* necessary to prepare a reliable autogenous vaccin seems to me very important in this connection, and as I am not a professional bacteriologist, I am anxious to quote freely from several who are bacteriologists and whose opinions are certainly authoritative. In other divisions of the subject also I have quoted verbatim much more freely than is my custom, in order that the reader may see exactly what the prevailing opinion is.

Dr. Charles E. Simon of Baltimore, Prof. of Clinical Pathology and Experimental Medicine, author of Infection and Immunity, 3rd ed. Lea, 1915, *etc.*, in a personal letter to me writes:

"In reply to our question I would say that under the most favorable conditions it would take four days to prepare an autogenous vaccin. If the cultures had to be prepared from the sputum, it would be necessary to plate, which would require twenty-four hours more. I am morally certain that vaccin treatment in an acute malady is altogether illogical."

Dr. John A. Kolmer of Philadelphia of the Pathological Laboratory of the University of Pennsylvania, and author of the new book on Specific Therapy already referred to, in a personal letter, says: "In reply to your letter I would state that under the most favorable circumstances an autogenous vaccin for a case of pneumonia cannot usually be prepared under seven to ten days. . . . I have not noted good results in pneumonia with vaccins, and on general principles am opposed to them in such an acute infection."

In a personal letter from Dr. A P. Hitchens, Director of the Biological Laboraterios of the H. K. Mulford Co., he says:

"Our routine method for the preparation of autogenous vaccins requires about ten days. . . . As soon as the vaccin is completed, cultural tests are made and a small quantity in injected subcutaneously into a guinea pig. We prefer to hold the check tests and the guinea pig under observation for seven days before permitting the vaccin to leave the laboratory." Then follows his shorter method, but he adds: "This should be done only in extremely urgent cases, because there are several loopholes in such technic. . . ." "In collecting a specimen for the rapid preparation of a vaccin, sputum is of doubtful value. I would much prefer the material obtained by a careful lung puncture."

If the bacteriologist objects to the sputum, and the patient to the lung puncture, perhaps the attending physician will object to the blood, on the ground that the pneumococcid are not always there, which is true.

In the Sept., 1915, number of Parke, Davis & Co's. "Therapautic Notes," on page 106, their bacteriologist says:

"Furthermore the element of time frequently plays an important part in determining the value of actively immunizing measures. For the preparation of a suitable autogenous vaccin anywhere from three days to week or more will be required, so that in an acute infection the necessitated delay before autogenous therapy can be instituted may jeopardize the chances of successful active immunization."

Some bacteriologists think that an autogenous vaccin can be prepared in from one to three days.

CONCLUSION.

To sum up the whole subject, unless we first ascertain by examination the exact infecting micro-organism, we find that we cannot depend on a stock vaccin, because in at least 10 per cent. of the cases of pneumonia, the pneumococcus is not the cause, but some one or more of quite a number of other organisms. Even in those cases where the pneumococcus is proved to be the cause, there are so many strains of it and degrees of virulence, that these varieties practically amount to so many different kinds of bacteria, each needing its own special vaccin, not being willing to respond to our stock vaccin. Therefore we are thrown back by necessity to the choice of autogenous vaccins which exactly correspond to the causative pathogenetic bacterium or bacteria in each case, and which are theoretically just the thing. Here we encounter a practical difficulty, however, in that acute pneumonia is a disease of very short duration, and it is generally impossible for the bacteriologist to prepare a really reliable autogenous vaccin soon enough to have much effect before the disease terminates in one way or another, especially if the physician is not called to the case (as often happens) until the second or third day of the disease, and also counting in the time lost in going or sending back and forth between the patient (especially if he is at a great distance) and the laboratory. Again, often the sputum is absent for the first one, or two or three days, and some physicians might shrink from substituting for examination the blood from a vein, or lung puncture products, and might lament the extra time and cost consumed by the whole experiment. This last objection of course could be made negligible if the experiment really promised more success than anything else, but it does not. So far not enough cases have been reported to form a proper basis for statistical evidence, as a very large number of cases, for reasons already mentioned in detail, is necessary. Nor is the statistical evidence, so far as it has come in, indicative of better results, or as good, as that derived from many other methods of treatment in the past which now by common consent have been abandoned as ineffective. Evidence of success in treating pneumonia by any method is peculiarly hard to analyze, owing to the rapid changes in the natural history of the disease, and its vagaries, and also to the wonderful influence on its prognosis of age, alcohol, epidemics, race, reason, and other factors. On this account much of the evidence adduced in favor of vaccin treatment is inconclusive.

In the absence of sufficient statistical evidence, we have the positive opinions against it of many clear-headed physicians, both practical clinicians and professional bacteriologists, who have tried it and found it wanting. Some even consider it at time decidedly dangerous.—The *New England Medical Gazette*, April, 1917.

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আয়ুর্বেদ প্রচার

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THE PHYSICIAN AS A SOCIAL AND AN ECONOMIC FACTOR*.

By S. E. Eletcher, M.D., Chicopee, Mass.

The preservation of health and the prolongation of human life, by increasing the productive power of the individual, augment in no less degree the economic welfare of the community of which he forms a part. It is therefore obvious that any factor in our social life which attains, or helps to attain, that end, becomes in itself a producer on a large scale, by increasing the productiveness of others.

The prosperity of a community, or state, or nation depends largely upon its power to produce, and in a lesser degree, to consume, wealth. Increased earning capacity allows an increased power of consumption, which in turn calls for still greater production.

The lowering of production, through the premature death of the worker from preventable causes, or his enforced withdrawal by reason of temporary or permanent disablement from illness, and the loss of infant lives, potential workers of the future, all total large on the profit and loss ledger of the community which allows disease-causing conditions needlessly to exist.

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* An address given at the Boston University Convocation held on Wednesday, June 6, 1917, at Jacob Sleeper Hall, College of Liberal Arts of Boston University.

Health means ability to work and to earn good wages, and a healthy community means more business, more money and more comforts. As health conditions are improved, so also are all social conditions bettered, from a mental, moral and economic standpoint.

Every true physician soon finds that the respect and affection of his patients and associates are far more valuable to him than mere mercenary gain, and that their appreciation of his efforts in their behalf to prevent disease brings to him a satisfaction which a more selfish attitude would fail to give.

It is a well-known fact that a large proportion of the illnesses from which we suffer is unnecessary and results either from ignorance or carelessness on the part of individuals or the civil authorities.

To combat these ills with medicine alone is futile; it is dealing with effects rather than causes and leads nowhere. By a study of causes, by striving to place preventive medicine on the same high plane as curative medicine, by proper instruction given to our patients in the laws of right living, and by encouragement and support given to our municipal and state health boards, the physician rises to his full responsibility and becomes a strong factor in the social, moral and economic development of the community.

This is indeed an age when the physician who can prevent disease ranks far above the one who only possesses the ability or the purpose to cure disease. A well-ordered community is not merely the one which possesses an efficient fire department, but the one whose building regulations also are so ordered that the outbreak of fire is rendered improbable.

It is conservatively estimated that the annual cost of sickness to the workers of this country, through the loss of wages, is in excess of $500 000 000, and that the average annual medical expenses of those upon whom this loss falls is more then $180 000 000. In addition to this vast loss, when it is considered that from 30 to 40 per cent. of all cases requiring the aid of charity are due to illness, it becomes obvious that disease is the cause of huge economic loss, a drain upon social efficiency and the basis of much of the poverty which exists.

Without detracting from the fame of the inventor, the scientist and the scholar, nor withholding from them the credit which is justly their due in their marvelous achievements which the world has witnessed in the past few generations, it must still be admitted that progress toward a higher civilization has been most largely due to the advancement of medical science, which has made possible all other development.

Can you picture the world as it is today, were it periodically swept by the terrible pestilences which ravaged it in ages past? Through the centuries of medical darkness was there ever an Edison, a Teskla, a Marconi? Was it not coincident with the advancement of medical knowledge that the real era of science and invention began? What would have been the history of mankind in the past one hundred years had not Jenner, or some other medical mind, discovered a means of controlling the ravages of small-pox, which destroyed 50 000 000 lives in Europe, in the 18th century?

How great a sum-total of human misery and physical suffering might still be ours if Lister had not opened the way to scientific surgery by his great studies in antisepsis? How much does the world, owe to Samuel Hahnemann for his discoveries which revolutionized the practice of medicine by instituting a system which cured, and relegated to the past a method whose crude efforts brought destruction?

Who can estimate the economic value to the world of Reed and Lazear, who made Cuba a nation and who released our Southern States from the ever dreaded menace of yellow fever?

To what an extent the physician, as an individual and as a class, becomes a conservator of human energy and productiveness and thus becomes himself a producer of wealth, not to himself, but to the state, may be easily demonstrated by a comparison of conditions of the past and of the present and by a brief review of the results of medical research and its application.

From the time when Hippocrates wrote upon Air, Water and Places, there was little advancement in hygienic knowledge or preventive medicine until 1617, when Woodhul discovered that lemon-juice prevented scurvy. For nearly one hundred and eighty years more, progress was slow and halting, until the great discovery by Jenner in 1796, that inoculation with the virus of cow-pox would prevent or greatly modify the ravages of small-pox, awakened the world to a new hope and stimulated research along other lines.

Of what inestimable value to the world the discovery of Jenner has proved, and his stupendous contribution to the industrial efficiency of every nation by the prevention of that one disease, may be appreciated by a comparison of our present immunity with the appalling losses of but one hundred and fifty years ago.

Gay, in the *Boston Medical and Surgical Journal*, records that prior to the discovery of vaccination by Jenner, small-pox caused one-tenth of all deaths in ordinary times, one-half in epidemics, and destroyed, maimed or disfigured one fourth of mankind.

A thorough vaccination by United States physicians in six provinces in the Philippines, having a population of one million, reduced the small-pox death rate from six thousand a year to not one death in five years in those districts.

A comparison in the city of Prague, of vaccinated and unvaccinated persons, over a period of twenty years, showed that of 10,000 vaccinated persons, there were 27 cases and 1 death, while among the same number of the unvaccinated there were 830 cases and 247 deaths. Need more be said to prove the vast saving of human life and productiveness to the world through the preventive effects of vaccination?

Yet in spite of the great stimulus given to medical research by Jenner, preventive medicine made but slow progress until the late nineteenth century, and particularly in the last twenty-five years, in which period it has advanced with giant strides.

The great cataclysm which has shaken the world, and which is now going on across the water, has demonstrated that whereas in the past, disease has been more fatal to the armies in war than have the bullets of the enemy, preventive medicine has gained one of its greatest victories in reversing that condition by a wide margin.

Typhoid fever was pronounced by Kean as the "most formidable infectious disease with which we have to contend in military life." It has always been a scourge in camp and came to be considered as almost a necessary evil.

When Wright discovered that a vaccin prepared from typhoid bacilli, killed by heat, and injected into the tissues of healthy persons rendered those persons practically immune to typhoid fever, he established a new era in military efficiency in every army which made application of his discovery. Its worth first demonstrated in the English army, it has become a part of the regimen of every civilized military establishment.

Since 1911, when vaccination against typhoid was made compulsory in the United States Army, the disease has practically ceased to exist in field and camp life.

In that year when 20 000 men were in camp along the Mexican border, but two cases of typhoid developed among satisfactorily vaccinated men. In 1914, with a great army on the Mexican border and in concentration camps, not one case of typhoid fever was known to exist.

Contrast this with the humiliating records of the Spanish War, when among 55 829 regulars assembled and in the field, there were 7 745 cases, while among the 250 000 volunteers assembled in camps soon after the declaration of war, there were 20 000 cases of typhoid, or about 80 cases to every 1 000 men.

The experience of the English army during the Boer War was no more satisfactory, for in the three years of the war one-sixth of all hospital admissions were from typhoid fever and dysentery, and one-half of the total death losses of the war were from these two diseases. Has not war indeed been robbed of one of its horrors by the work of the physician and by preventive medicine?

Two fearful agencies of destruction, war and pestilence, have ever travelled in company, and conquest has often been purchased at frightful cost, for with the home-coming armies have also been carried the germs of death-dealing plague.

Particularly has this been the case with typhus fever, known also as camp fever, jail fever and ship fever, which has ~~attended~~ almost every great European war from the time of Charles the Fifth, in the 16th century, even to the present time.

The campaigns of Napoleon saw thousands of France's soldiers perish from this dread disease, and more than 10 000 of Russia's soldiers in the Turko-Russian war of 1876 contracted typhus, one-half of whom died. Among physicians and nurses the morbidity and the mortality were particularly high, for over 60 per cent. of physicians attacked died, and about 75 per cent. of all nurses and attendants in the Turko-Russian and the Crimean wars were affected.

Even in times of peace, Ireland and Russia in particular have suffered frightfully from epidemics of typhus, and no part of the world has altogether escaped.

In recent years, improved knowledge of sanitation and personal hygiene have wrought much improvement, yet in 1914—15, an outbreak of the disease in Serbia, where almost every house, prison, camp-hospital and barracks was invaded, destroyed 135 000 lives, including those of 30 000 Austrian prisoners.

With the recent discovery that the disease, once thought to be highly contagious, was actually transmitted through the medium of body and head lice, successful preventive measures could be undertaken. Through the work of the American Red Cross physicians and nurses and sanitary experts, under the leadership of Dr. R. P. Strong of Harvard Medical School, a system of camps and hospitals with proper sanitary regulations has been established in Servia and the epidemic has been practically blotted out. Thus again has medicine conquered in the war against disease, and her fruits of conquest are the betterment of humanity, a reward infinitely greater than conquered territory or vast money indemnity.

Since the discovery in 1894 by Kitasato and Yersin, that plague was due to a specific microorganism which is spread by lice, fleas and other insects, but particularly by the fleas which infest rats, that dread disease with its terrible mortality, and which has been almost continuously present in the world since the dark ages, has become practically extinct in every country where sanitary precautions have been instituted and enforced.

That one of the greatest, if not the greatest, engineering feats of all times has been successfully accomplished, has been due no less to the physician than to the engineer, for the building of the Panama Canal was made possible only by the application of discoveries in preventive medicine. The appalling deathrate among the workers under the French Company made further progress seem impossible because of the lack of available human material. It is not until the discovery of the mosquito-borne infection of yellow fever and malaria by Finlay, and later demonstrated and proven by the labors of Reed, Carroll, Agramonte and of Lazear (who gave his life in experiments and who died from the bite of an infected mosquito), that effective work became a possibility. Experiences of the past made it evident that the first step must be a compaign to guard the health of the workers, especially in regard to yellow fever, plague and malaria. With a knowledge of the causes of these diseases, it became simply a problem of eliminating the mosquito and the rat. By making all houses and docks rat-proof, and by an active compaign of extermination, the rats were done away with, and by disinfection of houses, proper disposal of sewage and the filling, draining and oiling of all swamps and low places where mosquitoes might breed, together with the screening of all houses as a protection against insect bites, the canal zone became, instead of a region of pestilence and death, a model community whose death-rate compared favorably with that of our American cities.

In 1881, the first year of French work, 63 per cent. of all employees were infected with yellow fever, with many deaths. In 1904, the first year of Uunited State's work, the death rate was, in comparison, but one-twelfth of the French record, and since 1906 there have been no cases of yellow fever in the Canal Zone.

Until 1898,, the first year of American occupancy of Cuba, yellow fever was never absent from the island, but with the application of modern sanitary methods it became parct~~ically~~ extinct so long as the Cubans continued those precautions.

Thus has the work of the physician, through preventive medicine, contributed to the world's progress.

I might cite also the great work in increasing human efficiency through studies and discoveries in relation to the hookworm disease, which has undermined the physical and mental health of the population of India, China and Egypt, destroying economic efficiency and preventing social development, and which has come to be a problem of great importance in certain portions of the United States. This whole subjects is now under careful observation of skilled sanitary commissions, and the expectation is well founded that its eventual control will be accomplished with great material gain to the infected districts and to the world at large.

When von Behring in 1890 announced the discovery of a serum which would prevent and cure diphtheria in a large percentage of cases, he preserved to the world annually thousands of child lives which would come in time to take their places as producers of wealth. The diphtheria mortality in the South Department in Boston in the period from 1889 to 1895 was 43 per cent. of all cases. From 1895, when antitoxin was first generally used, to 1904 inclusive, it fell to 11.48 per cent., while in 1912 it was but 7.6 per cent., including laryngeal and moribund cases. And the statistics of late years have been no less favorable.

When Wright in 1900 gave to the world his opsonic theory and thus opened the way for vaccin therapy, he placed at our command a means for the preventive as well as the cure, of disease which has proven of untold value. On this is based the treatment of the infections by bacterial vaccins with vastly more favorable results than by the old methods, and preventive inoculations, particularly in the case of tetanus and of typhoid fever, which have proved so successful a means of prophylaxis in those diseases.

The Roentgen ray, although not a medical discovery, has been applied practically to human needs by medical research and experiments, and its wonderful diagnostic possibilities theraby developed.

Lightning existed before Benjamin Franklin, but it remained for him to demonstrate that electricity was a force which could be utilized for man's needs.

So also have the therapeutic uses of the various light-rays and of radium been applied and developed by the medical scientists of the last few years.

I could not close this paper without paying tribute to the brilliant minds and to the clever human mechanics whose painstaking work has done so much to develop surgery in these past twenty-five years. What myriads of lives have been saved and how many maimed and crippled bodies have been restored to usefulness by the modern surgeon by methods which but a few generations ago were deemed impossible!

The advances in surgery has been largely due to an increased knowledge of asepsis and of sterilization. Robbed of the dangers of infection, operations which were formerly done only as a last resort are now undertaken with confidence. Improved methods of sterilizing and toughening catgut enable the surgeon now to use sutures and ligatures of degrees of resistance suitable for each need and to discard those which has given so much trouble and uneasiness in the past.

In local anæsthesia the surgeon has found a method of nerve-blocking which allows the performing of many operations with a minimum of shock to the patient.

The wonderful experiments and performances of Carrel at the Rockefeller Institute have opened to the surgeon new possibilities in nerve and bone-grafting and in the suturing of severed blood-vessels, with consequent control of hæmorrhage and preserved circulation.

Perhaps one of the most radical advances in surgery in the last generation has been in the treatment of bone fractures. The Lane plates and the bone plate as devised by Albee have made it possible to repair fractures, without resulting deformity, of types which were formerly impossible of coaptation and permanent alignment. So also has the nailing of hip fractures become a successful method of treatment of those unfortunate conditions which, in the past, so often resulted in permanent deformity. Of no less importance has been the progress in bone transplantation and in the repair of diseased and crippled spines.

Even as preventive medicine has saved to the world thousands of lives annually, so also has the surgeon contributed his part to economie welfare of the nation in the lives which his improved methods have preserved and in the cripples whom he has restored to usefulness.

As I look back upon the status of our medical knowledge at the time I graduated, twenty-six years ago, and, comparing it with the standards of today, I realize that in this wonderful age of invention, of vast industrial development and standardization, of the great social cataclysms that are taking place in the world, medicine has been no less progressive nor has failed to mark her footprints on the paths which lead onward and upward.

And as I contemplate the marvellous accomplishments of medical research and experiment, and appreciate more fully how much of the world's progress and enlightenment has been due to the physician's work, what tremendous additions he has made to human efficiency and productiveness, my heart thrills with pride that I also may be numbered, even as an humble armor-bearer, in the ranks of that noble army whose battle field is the world, whose enemy is disease, whose conflicts bring not death, but life, and whose victory brings no tears, but only peace and prosperity. —The *New England Medical Gazette*, July, 1917.

EDITOR'S NOTES

Infant Feeding Simplified.

DR. H. O. SKINNER.

The artificial feeding of infants, usually considered so complicated, may be made very simple and the following schema, varied slightly to meet individual requirements, has been my mainstay for a number of years.

The requirements are knowledge of quantity and composition.

Quantity of food required is determined thus: the number of feedings (5 to 7, one each at 6, 9, 12 A. M., 3, 6 P. M., and one or two at night) is multiplied by the amount given at each feeding (1 to 2 oz. more than the age of the baby in months).

Composition considers the nutritive principles of milk and sugar with water or barley water enough to make up the total amount required.

Milk whole, 1 to 2 ozs. daily for each pound of the baby's weight.

Note: begin with only 1/4 to 1/3 milk and more or less slowly increase to the amount required by the above schedule.

The best milk is Holstein, the poorest, Jersey or Guernsey. Herd milk, is better than one cow milk. Cream is not well tolerated. Too much is evidenced by sourness, vomiting, curdy appearance of stools and usually constipation. Remedy, skim the milk.

Sugar, roughly, as much as can be tolerated, beginning with ½ oz. and working gradually up to 2 ozs. daily.

Malt sugar (dextri-maltose) is usually best tolerated, but will not agree with vomiting babies for whom milk sugar is best. Cane sugar is the sweetest, but worst tolerated. Intolerance is shown by gas, chafing and diarrhœa.

Diluent—Plain water is good, barley water (2 to 4 teaspoonfuls barley flour, in 1 pint water, boiled fifteen minutes, replacing water of evaporation) is better. Oatmeal water (made by substituting tablespoonful of oat meal for teaspoonful of barley flour) is said to be somewhat laxative, but in my experience is no better than barley water.

Lime water (1 part to 15 or 20 of formula) in case of normal babies, added to the day's milk mixture seems to make it more digestible.

If necessary to boil milk, do so after adding the water, but before adding the sugar or alkali.

On ocasion of changing the strength of formula, decrease very rapidly, but increase very slowly and cautiously.

Weigh baby every week, as weight is the only criterion for growth and is necessary in fitting the baby's food to its needs.

The baby should be wakened if asleep at feeding time and fed nothing between times but water.

The baby should receive normally about 40 calories per pound per day. The value of any mixture can be figured from the following food values: 1 oz. milk, 20 calories; 1 oz. sugar, any kind, 120 calories; 1 oz. barley water (2 teaspoonfuls of the flour), 2 calories.

Epidemics of Influenza.

The winter just passed has been a very severe one in Philadelphia because of the epidemic of influenza and more especially of influenzal pneumonia, which diseases enormously influenced both the morbidity and mortality figures of the city while the trouble lasted. In looking over an old edition of the *Homœopathic News*, found among some data left by Von Lippe, the writer came across an account of the remedies found useful in the epidemics of the spring and summer of 1855 in Philadelphia. It appears from this old slim-leafed homœopathic journal that "The second week of February, a violent N.W. wind prevailed, which was followed by influenza." Among the principal medicines used at that time specific mention is made in the account of *Belladonna, Arsenic, Ammonium muriaticum, Ammonium carbonicum, Phosphorus, Bromine, Bryonia,* and *Lachesis.* There then follows very properly the indications calling forth this list in treatment.

Belladonna.—Chill, followed by fever, chill and fever alternating; chilly whenever the position in which one lies is changed; throbbing headache; red face; aversion to light; inflammation of the throat; pain in the back as if it would break; pain in all the limbs; some discharge from the nose; dry, hard, periodical or barking cough, with headache and pain in the abdomen.

Arsenic.—Profuse watery discharge from the nose, excoriating the nostrils and making the upper lip sore.

Ammonium muriaticum.—Watery discharge from the nose; nose stopped up; can only breathe through the nose; cough; *hoarseness and burning in the larynx.* (This is italicised in the journal. Phosphorus certainly has these two symptoms in a most marked degree as elicited by proving.)

Ammonium carbonicum.—Fluent coryza, with stoppage of the nose; and *cough after midnight* (two to three o'clock A. M.).

Phosphorus.—Fluent coryza, with cough which is worse *before* midnight, with hoarseness, soreness and burning in the chest.

Bromine.—Fluent coryza; *first the right nostril is stopped up, and then the left*; headache in the forehead, especially on the right side, with a pressure downward, as if the brain was forced down through the nose; short, dry, hacking cough, with difficulty in breathing, which is short and hurried.

Bryonia.—Chill, followed by heat; pain in the head, as if it would split; pain in all the limbs; cough, with stiches or soreness in the chest; all worse when moving.

Lachesis.—Headache in the forehead; the discharge from the nose is trifling; throat sore especially when touched; very soon the nose discharges profusely, and the throat and head are relieved.—The *Homœopathic World,* August 1, 1917.

Salvarsan and Intramine.

J. E. R. McDonagh contends that the arsenic in salvarsan does not kill the parasites of syphilis directly, but only by virtue of its oxidizing action on the protein particles in the serum, an action common to all metals. Other metals less toxic than arsenic can be used and colloidal mercury, as now prepared, is about three times as active as salvarsan against blood parasites. From, five to fifteen mils of a one per cent. solution can be given intravenously at a single dose. Combined with this the treatment should include injections of intramine, a sulphur reducing body, which should be preceded or accompanied by an injections of colloidal iodine to fix the mercaptan group caused by the breaking down of the intramine and thus to enhance its action. This combined treatment by alternating oxidizing and reducing agents gives results better than those obtained from the use of salversan in syphilis and can be completed in about two weeks, nine injections being given intravenously in that period. The intramine should be given intramuscularly, though an intravenous form of this new drug is now available. None of the drugs directly destroys the spirochetes.—The *New York Medical Journal*, August 25, 1917.

Diabetes Mellitus.

H. P. Greeley says that the subsequent education of the patient in keeping sugar free is more important now than ridding him of his sugar and acidosis, since this can be so easily accomplished by the fasting treatment. The education of the patient can best be accomplished by having him and a member of his family spend several weeks in an institution where they learn the examination of the urine, the preparation of foods, and the methods of controlling the diet to keep the urine free from sugar. Here, as well as in classes, they are encouraged by seeing the hopeful progress of their fellow sufferers. It is not sufficient merely to devote the attention to the control of the diet, but it is necessary to go carefully into the patient's home and business environment and his habits of life and temperament. These should all then be regulated to avoid all forms of worry, strain, and fatigue, and to secure a sufficient amount of healthful exercise shortly after each meal and before retiring for the night. The patients should be taught the advantage of reduction in weight to a level fifteen to twenty pounds below the proper average for their stature. The carbohydrate tolerance should be carefully determined and checked from time to time and the full diet ultimately allowed should contain not over eighty per cent. of the patient's tolerance. The use of white bread should be denied to all patients whose tolerance is less than fifty grams of carbohydrate and the commercial gluten flours should not be countenanced at all, as they are usually gross frauds and contain about forty per cent. of starch. It is quite as important to adjust the protein and fat intake as well as the amount of the total diet as it is to limit the carbohydrate, and the keynote of success is underfeeding. The diet must be carefully balanced in all of its constituents to meet the individual needs of the patient, and individualization in treatment is absolutely necessary for success. Previous treatment of diabetes by the usual older methods renders it more difficult to control the patient and makes the prognosis less favorable than it is in cases coming under care for the first time. The longer the duration of hospital care the longer will be the average period of freedom from glycosuria after discharge. Similarly, the ultimate results of treatment will vary directly with the intelligence of the patient.—The *New York Medical Journal*, August 25, 1917.

Proportion of fat in Milk.

A curious case, raising a question as to the regulation with regard to the minimum amount of fat in milk, was heard on appeal in the King's Bench Division on July 26th. It appeared that the respondent was the owner of one cow, which had recently calved; on a certain morning the cow had not been fully milked, some being left in it for the calf. The case arose on the sale of half a pint of the milk of the cow which was deficient in fat to the extent of 13 per cent., the actual percentage being certified to be 2.6 instead of 3 per cent., as fixed by the Sale of Milk Regulations, 1901. Four days afterwards, when the cow was completely milked, a sample taken contained 3.9 per cent. milk fat. The justices held that the deficiency was due to the manner in which the respondent had milked his cow, but held that as the milk had been sold as it came from the cow, without abstraction or addition, it was of the nature, substance, and quality demanded by the appellant, and dismissed the case. The Court of Appeal upheld the decision of the justices, but the Lord Chief Justice, after saying that the case was covered by the decision of Hunt *v.* Richardson, which was to the effect that when the product was sold as it became from the cow it was milk and that being so there was no offence on its sale, added an expression of his opinion that the arguments in the case had convinced him of the desirability of fresh legislation. The authorities should determine whether it was the intention of the legislature or of the departments which had the means of introducing amending Acts of Parliament that milk should be sold to the public, as it was in this case, with an undoubted deficiency in milk fat, the result being that the farmer could retain for himself the better quality, leaving to the public the inferior. Mr. Justice Atkin, in his judgment, added the observation that as things now stood a farmer was entitled by law to give preference to his own calves over the babies of his customers. The effect of the regulation and the decisions under it is that if milk does not contain 3 per cent. of milk fat there is a presumption that something has been added or abstracted, but that presumption may be met by evidence, and if a court is satisfied that it has been so met, then it cannot find that an offence has been committed.—The *British Medical Journal,* August 4, 1917.

Collectanea.

Alcholism and Crime—With the declaration that every agency will be brought to bear upon discouragement of the use of intoxicating liquors, the State Department of Health has issued a statement that investigation shows twenty-four per cent. of all homicides in 1916 outside New York to have been directly or indirecly due to the use of alcohol. Coroners who returned the death certificates were asked to furnish the data. Last year in the State, outside New York, there were reported 138 homicides, says the Department's statement. Data were secured on eighty-three cases, in which nine were infants and seven cases in which the facts were not obtainable. In thirty-six cases the coroners declared liquor to be the basic cause of the homicides, so that of those cases where complete data was obtained, liquor stands responsible for fifty-four per cent. of the homicides. The Secretary of State informs the Department that ninety-six per cent. of revocations of auto-licenses in 1915 were for intoxication. The percentage for this cause in 1916 was sixty three, but the increase in the number of revocations from 1915 to 1916 was 109 per cent. These facts point a strong moral. The State Department of Health is concerned with the health side of the problem, however; for, in addition to the deaths directly attributed to liquor, there is an enormous amount of sickness, lowered vitality, and other results which eventully contribute to death. This we cannot estimate, but we know it exists. Alcohol causes more inefficiency, misery, sickness, and death than any other single cause. The relative death rate between the abstainer and nonabstainer is as 100 is to 186. Wholly aside from the relation of liquor to crime and morality, the question of health makes it imperative that we do everything we can to cut down the consumption of alcoholic beverages.—*New York Medical Journal*, July 28, 1917.

CLINICAL RECORD.

CASES OF INTEREST.

In a recent issue of the *Pacific Coast Journal of Homœopathy* Dr. William Boericke cites two remarkabe cases of cure, one from the action of *Vipera*, the other from that of *Sepia*. The former is reported by Dr. Frederick M. Dearborn, whilst the latter came under the care of Royal S. Copeland, the Dean of the New York College.

Case I. A. Woman of forty-two years, with an eczema rubrum of the right leg of three years duration, secondary to a varicose condition of the same member and of six years duration found it impossible to continue her work as clerk because the burning and itching of the skin became so aggravated. A sensation of bursting developed as soon as she had been seated for a half hour or so. Relief was experienced by elevating the leg, hence her sleep was in no wise interrupted. Even walking afforded a temporary relief. *Calcarea flourica* and *Flouric acid* were given with some benefit, except that the burning sensation still remained. *Vipera* 12x caused a complete disappearance of this symptom within 10 day's time, and although the patient still has the varicose veins, the secondary eczema has improved from the lessened pressure. No rubber stocking or bandage was used because of the intolerable heat. I might add that other remedies have been used since, but there has been no return of the bursting sensation during the past eight months.

Case 2. The patient was abous 52 years of age. She came to me as the next of a long line of oculists who had fitted endless pairs of glasses. She had astigmia. This was corrected for distance, and glasses considered proper for reading were likewise prescribed. Two months of he usual torture followed. I then took her blood pleasure and found it to be 165. This is not excessive of course, but yet it seemed to me capable of causing all her head and eye symptoms. The urinary and physical examination by her physician had revealed nothing out of the ordinary. On finding high tension I went further into the history and symptoms.

Three years ago the patient had acute mania which lasted for some time. After recovery from that she continued excessively nervous. The slightest nervous shock or excitement caused rapid and painful action of the heart. Even thinking of disagreeable things increased the action of her heart until the patient became painfully conscious of it. There was marked mental depression, unhappiness and a suicidal tendency. The patient complained of dizziness on looking down and on walking. She was not sure of her hands and dropped things. The characteristic hot flushes were conspicuous and perhaps decided the prescription. Anyhow *Sepia* was prescribed on December 10th last. On December 20th, the blood pressure, a tangible symptom, had fallen to 140. A week later it was 130. Every untoward symptom had disappeared and this day my patient is a happy, cheerful and enthusiastic woman, whose view point has been quite reversed, and who is a daily exponent of the virtues of homœopathy.

Naturally I am wondering if a modern proving of *Sepia* would not reveal increased pressure as one of its characteristic symptomps. Possibly its value in the climacteric lies in its control of this condition. At least, in this patient, *Sepia* symptomatically prescribed was far more potent than the product of the test case. The *Homœopathic World*, July 2, 1917.

Gleanings from Contemporary Literature.

THE HOMŒOPATHIC TREATMENT OF WHOOPING COUGH.*

By Conrad Wesselhoeft, M.D., Visiting Physician to the West Department (Contagious) of the Massachusetts Homœopathic Hospital, Boston.

In any consideration of the homœopathic treatment of a given disease it is advisable to prelude the mention of remedies and their indications with a brief discussion of the varieties of homœopathic treatment. All homœopathic treatment, as its name implies, is based upon the therapeutic principle. "Let likes be treated by likes." The application of this principle, however, is again made subjects to therapeutic rules, but these are by no means in harmony with one another. In fact these so-called side issues of homœopathy, being often contradictory have, since the early days of the last century, been the cause of much dissension in the homœopathic ranks.

The first of these side issues to be considered is the question of dosage. One faction claims that there is no limit to the potentization of the remedial powers of drugs through indefinite dilutions. These clinicians usually adhere rather strictly to the homœopathy as prescribed by Hannemann in his later years. They lay especial emphasis on the value of the infinitesimal dose and the accurate use of a repertory. As they do not agree on the repertory to be used, and as the accurate use of different repertories leads to the selection of different drugs for the same symptom complex, they cannot be said to be entirely united in their method of procedure. This is merely an admission that prescribing is more of an art than a mathematical problem with but one answer, and concedes the proposition that different prescribers might bring about equally good results in the same case with different prescriptions. It is perfectly conceivable to me that *ipecac* or *magnesia phosphorica* might do equally well for one patient with whooping cough, while in another case one remedy would have distinct advantages over the other. The high potentists are usually the most accurate prescribers, but their accuracy is so often nullified by the inaccuracies of the premises they use,—*i.e.*, inaccurate provings in the materia medica and incomplete observations on the case at hand,—that they fail in their effort in spite of the time and energy expended.

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*From the Pharmacologic Department of the Evans Memorial. Read before Alethean Club, April 23, 1917.

The low potentist is apt to place less credence in the correctness of the many and varied ideas of Hahnemann on homœopathy. He employs the principle "*similia similibus curentur*" in a given case more because it is the most logical method he knows of, rather than because he believes that it is the last and final word in all pharmacotherapeutics. Because of his tendency to be skeptical he relies more on general indications, feeling that the factor of error in provings makes the repertories too inaccurate to be relied upon, with the result that he tries a series of similarly acting remedies on a case, guided more by "keynote" symptoms than by the totality of symptoms.

This brings up the all-absorbing question of the individuality of the patient and its importance in prescribing. Hughes remarks that "the totality of the symptoms is, to the therapeutist, the disease."[1] How much shall be taken into consideration in the totality of the symptoms? Some would have us include the individualities of the patient, such as temperament, ameliorations and aggravations, peculiarities and symptoms, all of which existed previous to the onset of the diseased condition for which we are called upon to prescribe. For instance, an adult patient of sedentary habits, with an irritable disposition, who generally feels worse in the morning, comes down with whooping cough. These individualities are peculiar to the patient in health, and yet they are indications for *nux vomica.* This remedy is not expected to change his natural disposition, but if he suffers from an abnormal condition which this medicine is known to produce in provings, such as constipation with "an ineffectual urging to stool," then we should expect it to correct this condition more surely and effectually than in one not exhibiting these peculiarities, because people with these peculiarities are, according to provings, most susceptible to the drug. But how far shall these individualities influence us in the selection of a remedy when this patient has whooping cough? The cough might be dry, worse after midnight and in the morning, with vomiting, fear, choking, nosebleed and attacks after eating, all of which are further indications for *nux vomica.*[2] The strict use of the repertory in this case would probably lead to the selection of this remedy.

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[1] Hughes, R.: The Principles and Practice of Homœopathy. London, 1902, p. 41.

[2] Lutz, A.: Lehrbuch der Homœopathie, Koethen, 1910, Auflage XIV, pp. 314-315.

On the other hand supposing the above case showed also a barking cough with paroxysms following closely on one another as in the indications for *drosera* or the very rapid coughing of *corallium rubrum.* Shall the individualities of the patient which persist in the disease outweigh the key-note symptoms which are the manifestations of the disease?[3] In other words, are we treating the individual in particular, or are we treating the particular manifestations of the disease in this individual? Homœopathic literature asserts that it treats the individual rather than the disease, and this is a very distinctive feature of this form of therapeutics. This may be construed in two different ways. One prescriber may lay emphasis on the individual peculiarities of the patient, while another disregards these to lay emphasis on the peculiar manifestations of the disease in this particular individual. In either case the homœopathic prescriber does not have a specific medicine for each disease.[4] On the other hand, Hahnemann informs us that certain epidemics of a disease call for one drug, while other epidemics call for another.[5] This seems rather to contradict the last statement, and so it does. In fact it is this very point that I wish to bring out: namely, that homœopathic physicians, like physicians of the old school, have a way of prescribing for epidemic diseases according to the name of the disease rather than

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Krœner und Gisevius: Handbuch der homœopathischer Heillehre. Berlin, 1906, Bd. 1, 411.

[3] Paragraph 153 of the Organon may be construed as answering this in the affirmative.

[4] The following words of Hughes are pertinent to the discussion: "But the leading physicians generally, from Hippocrates onwards, in their desire to be rational instead of empirical, have aimed at treating patients according to systems which they have excogitated, and have left specifics to quacks,—who have thriven accordingly. Hahnemann once more bent attention in the true direction; while, by discovering the law of specific action, he rescued it from empiricism and haphazard, and made it as rational as it is beneficial. I say beneficial; for would it not be an immense boon for suffering humanity if all diseases could be treated as ague as treated with quinin? It is because homœopathy is working towards this end,—and indeed towards something still more perfect, for to give quinin in every intermittent without discrimination is but rough practice,—it is for this reason among others that its method is not only positively but comparatively desirable."

[5] ". . . . Each epidemic possesses a peculiar uniform character, common to all individuals attacked by the epidemic disease. By observing the complex of symptoms peculiar to all patients, this common character will be found to point out the homœopathic (specific) remedy for all cases in general. . . ." Hahnemann, S.: Organon. 5th ed., Wesselhœft translation, §241.

according to the individual expressions of the disease in the patient to be treated. Too often *belladonna* is prescribed in scarlet fever for no other reason than the fact that the physician always associates the symptoms of this drug with those of scarlet fever. The diagnosis seems to establish the treatment. The physician does not even look into the symptoms enough to establishe the characteristics of the epidemic. He assumes that *belladonna* is the indicated remedy, primarily because of the reputed efficacy of this drug in his homœopathic text-books, and secondarily because his experience in the use of this drug in scarlet fever has been satisfactory to him. If the results in control cases do not warrant this confidence in the remedy, such treatment is purely empirical. Although the use of *belladonna* in scarlet fever had its origin in homœopathy, indiscriminate and even routine use of this drug in this disease may be anything but homœopathic treatment, because this drug may not be, and usually is not, indicated in all cases, or anywhere near all cases. Should *belladonna* be indicated in a given epidemic, however, and be demonstrated by control cases to be truly efficacious, we might then be justified in giving it as routine and call it homœepathy. It is certainly the duty of homœopathic institutions to carry out such studies if homœopathic therapeutics is to progress and to inspire interest in students and physicians of other schools. I am convinced that individualization in prescribing is largely impractical in the acute contagious diseases. Since the majority of cases are in little children, subjective symptoms are unreliable and we are forced to prescribe on comparatively few objective symptoms. This is particularly true of whooping cough. Consequently, we should endeavor to test the efficacy of such remedies as are indicated by their symptomatology in epidemic diseases. Wooping cough deserves especial attention in this respect, because the indications are few in uncomplicated cases and are confined almast wholly to the character of the cough once the whoop is established.

Another point that I wish to bring out is the relation of the seat of the drug's actions to the seat of the disease. The pathological process in whooping cough, as has already been pointed out,[6] consists in the accumulation of the bacilli among the cilia which line the trachea and the bronchi. The bacilli interfere mechanically with the function of the cilia, giving rise to a reflex paroxysmal cough, and, by giving off a mild poison they promote lymphocytosis, edenitis and the production of antibodies. Is there a drug in the materia medica which can produce this pathological complex? Of course there is not; just as no drug can produce malaria plasmodia in the blood or didhtheria bacilli in the throat. But quinin can produce many of the symptoms of a malarial paroxysm, and it has been known to bring about a relapse of malaria itself, with multiplication of the latent plasmodia in the blood. Furthermore, certain salts of mercury have been known to produce the gross pathological picture of pharyngeal diphtheria. Neither quinin nor any drug, however, can produce the pathological picture brought about by the mechanical obstruction of capillaries through the accumulation of plasmodia; nor does the fibrinous membrane of the pharynx from corrosive sublimate poisoning spread down into the larynx or forward into the nasal cavities to give respiratory obstruction. The drug pictures are merely similar to, but by no means identical with, the symptoms of the disease. So in whooping cough we can only hope to find drugs which will produce symptoms similar to the disease in its various aspects. In so doing, however, it is essential to bear in mind the seat of the drug's action. *Nux vomica* may, through irritation of the gastric mucosa, give rise to a reflex cough. In this case the vomiting is primary, that is, it orpinates with the gastric irritation. But in pertussis the cough is the result of the bronchial and tracheal irritation, and the vomiting is secondary, being the result of a reflex through the vagus nerves. Consequently the *nux vomica* symptoms, though in some respects similar, are nevertheless remotely related to the symptoms of whooping cough. Much the same thing might be said of *ipecac* but to a lesser degree.

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[6] Wesselhoeft, C.: Whooping cough and its treatment. N. E. Med. Gazette, 1917, lii, 1-9.

Let us consider the *modus operandi* of drugs administered homœopathically in whooping cough. Inasmuch as we have no drug that is vaunted to be especially reliable in all cases of whooping cough we must be content to discuss in general terms the homœopathic action of drugs in this disease. Bearing in mind the cause of the symptoms of whooping cough, what can we say as to the relation of these drugs to the pathological process by which we are confronted? So far as I am able to learn, no modern scientific pharmacological research has been made regarding the action of these drugs which pertains in any direct way to their possible *modus operandi* in this disease. This being the case, we can merely indulge in a speculative discussion of prevailing views on the subject. To some, the twentieth paragraph of the Organon offers a satisfactory answer.[7]

Yet even Hahnemann placed "slight value upon an attempt at explanation."[8]

This concession on the part of the founder of homœopathy, although a frank admission of his inability to comprehend the *modus operandi* of the curative action of drugs, is, nevertheless, the weakest spot in his entire structure of homœopathic therapeutics. Assuming it is to be a law of nature that likes are cured by likes, he asserts that "scientific explanation of its *mode of action* is of little importance."[9] Granted that such a law exists, how can we possibly be expected to apply this law without a clear understanding of what constitutes the similarity of the drug to the disease which we are to cure? If we had this clear understanding we should be far better able to explain its mode of action; and what is more we should be able to apply the law accurately. Consequently I deplore his minimizing the importance of scientific explanation, because it tends toward dogmatism by discouraging research into the fundamentals of scientific and rational therapeutics.

It must be remembered, however, the Hahnemann was a physician of the early part of the last century, and that medical thought and progress are at a different stage today. Compared to his contemporaries of the other school his writings show superior medical philosophy. But the advances in medicine have given us a different language from that of his day. We should not and cannot discuss homœopathy in the terms of the Organon. Such terms as "miasms," "vital force" and "morbific potency" belong to an obsolete or even a dead language.

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[7] "Neither the spirit-like power concealed in drugs, and shown by their ability of altering the health of man, nor their power of curing diseases, can be comprehended by a mere effort of reason; it is only through manifestations of their effect upon the state of health that this power of drugs is experienced and distinctly observed"

[8] "Since this natural law of cure has been verified to the world by every pure experiment and genuine experience, and has thus become an established fact, a scientific explanation of *its mode of action* is of little importance; I therefore place but a slight value upon an attempt at explanation. Nevertheless the following view holds good as the most probable one, since it is based entirely upon empirical premises." *Ibid.* § 28.

[9] Compare the words of one of our noted medical writers of today: "The treatment of *chlorosis* affords one of the most brilliant instances—of which we have but three or four—of the specific action of a remedy. Apart from the action of quinin in malarial fever, and of mercury and iodid of potassium in syphilis, there is no other drug the beneficial effects of which we can trace with the accuracy of a scientific experiment. It is a minor matter *how* the iron cures chlorosis." Sir William Osler.: The Principles and Practice of Medicine, 1916, p. 789

In the light of modern medicine, Hahnemann's tentative explanation[10] is likely to be viewed more with historic interest rather than with scientific respect. The medical student of today with his teachings in pathology, immunology and pharmacology can never be impressed by the significance of this argument.[11] And yet twenty years from now the theories of many of our eminent physicians,—theories which now constitute the last word in medicine, and according to which patients are subjected to many discomforts in treatment,—will probably be discarded and looked upon with the same degree of disgust that most of us look today upon the purging, blistering and vomiting of a century ago. With this possibility in mind it behooves us to speak more guardedly and modestly of our convictions in therapeutics.

Practitioners of homœopathy vary, as has already been said, in their application of remedies in acute infectious diseases. We have mentioned the divergence of opinion regarding the dose and the manner of selecting the remedy. It is also appropriate to bring to mind the alternation of remedies as is practised by many. Hahnemann[12] was opposed to this usage, and his close followers of today are outspoken in their denunciation of this practice, because it is not in keeping with the fundamentals of the doctrine of the single remedy. Their argument is that since the selection of a remedy is based upon the provings of single medicines the combination or alternation of remedies in the treatment of disease is not in keeping with the fundamental principle governing their application; because they are not proved in combination or alternation. This argument has always appealed to me sufficiently so that I neither use the combination tablets of our homœopathic pharmacies nor do I alternate medicines. Nevertheless this argument is purely a theory, and its correctness is dependent upon the relative efficacy of bedside tests.

One of the most discouraging things to the young student of homœopathy is the lack of clinical research regarding the application of homœopathic remedies. He is impressed by the statistics in favor of homœopathy in pneumonia, typhoid, *etc.*, *etc.*, but the statistics of high potentists, low potentists and those who alternate and those who do not, are all jumbled together in these compilations pertaining to the relative efficacy of homœopathic therapeutics. In the last hundred years homœopathic physicians have been guided largely by the logic of theories and their own, or their preceptors,' experiences, rather than by the results of controlled and carefully conducted clinical researches. The old school has conducted such researches and the true students among them have accordingly discarded many of their faulty notions regarding alcohol, strychnin,[13] *etc.* In so doing they weighed many of their pharmacologic theories evolved in the laboratory and found them wanting in therapeutic efficacy. The homœopathic school has also made investigations, but these have been either of a general nature or confined to the efficacy or *modus operandi* of one drug in a given condition. But no comparative clinical statistics of any moment have been produced to show the relative efficacy of low potencies over high potencies, of the value of a particular repertory over another, of the value of alternating or combining over the single remedy. This self-satisfaction of individual homœopathic physicians as to the correctness of their views on homœopathic problems has acted as a damper to the investigations so essential to the advancement of medicine, and has resulted in the teaching of dogmatism to students in the guise of "the science of therapeutics."

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[10] Organon, § 29.

[11] Courses in homœopathic philosophy as given today in our medical schools fail to inspire interest in the students for the very reason that the language used is not in keeping with that used in the rest of the curriculum. The lectures are based on the writings of a century ago, and only weak attempts are made to support these old doctrines with the results of modern investigations.

[12] Organon, § 272; note 138, Dudgeon, trans., fifth ed., § 272, footnote.

Theories are essential to the advancement of medical thought, but this advancement only comes through scientific investigations in which bedside tests must corroborate laboratory experiments. This is by no means impossible of achievement in regard to the theories of homœopathy. In fact it is essential to the self-respect and even the very life of the homœopathic school. Meyer and Gottlieb[14] have called attention to the rise of medicine with that of agriculture. We may compare a certain type of doctor with a peasant. Both may make a living from their efforts because in each there rests a sufficient degree of actual knowledge and practical skill. But the scientific physician who keeps himself informed of medical progress is as superior to the above mentioned type of physician as is the scientific agriculturalist superior to the comparatively ignorant peasant. However, it is not to be forgotten that the scientific farmer often learns valuable tricks from the peasant. So, in medicine, the laboratory scientist may be able to correct the views of the family practitioner, but the latter by his experience may and often does give the former a hint,—usually based on an erroneous theory,—which when tested and subjected to scientific research becomes a boon to suffering humanity.[15] Consequently the study of drug idiosyncrasies may establish such truth as may lie in the high potency theory, and studies in the synergistic action of drugs may substantiate the practice of alternation and combinations. These truths, however, will only receive general recognition in therapeutics when the above studies shall have so limited their application that by following indications we may acquire a definite and high degree of success.

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[13] Cabot, Richard C.: Studies on the action of alcohol in disease, especially upon the circulation. Medical News, July 25, 1903.

Measurements of blood pressure in fever before, during and after the administration of strychnin. American Medicine, 1904, viii, 31; Parkinson and Rowlands: Quart. Jour. of Med., vii, 42; Crile, quoted by Cushny, A.R.: Pharmacology. Phil. 1915, p. 276.

[14] Pharmacology, Halsey trans., 1914, p. 581.

Had my experiences in whooping cough convinced me that the disease was easy to control with homœopathic remedies it is doubtful whether I should have indulged in the above remarks, which are in the nature of an explanation and justification of what is to follow. On the contrary I have found it exceedingly difficult in my hospital wards to control whooping cough with any remedies, homœopathic or otherwise, which do not in the end do the patient more harm than good. I qualify this last statement because I am as capable of checking the symptoms of whooping cough as effectively and as completely as any physician living, simply by giving large enough doses of opiates, bromids, atropin or other poisons, by rigorously enough twisting their spines and yanking their nerves, by starvation, electric shocks and even by more direct but less cruel methods. But because these never appealed to me, and as the results of the use of the above drugs in whooping cough in this way never impressed me, I have leaned toward homœopathy, and in it I have found the solace of feeling that I have seen suffering humanity benefitted by this simple and, to my mind, logical, method of therapeutics. If my impressions are faulty, and I have been unwittingly deceived in this respect, there is a degree of satisfaction in heaving attempted to investigate the possible truth of these principles in the laboratory and the efficacy of their practical results by clinical research. The pursuit of these studies has led me into the intricate problems which entangle homœopathic therapeutics, problems as yet unsolved by science, and my results, though often discouraging to the cause of homœopathic propaganda, are none the less convincing that further investigations should be made.

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[15] *Salicylic acid* was introduced as a medicine for rheumatism in 1874 by an English army surgeon, Maclagan, who got the idea from the Hottentots of Africa. Thus the aspirin habit may be said to have originated in darkest Africa, —which is very appropriate.

Withering's attention was called to *digitalis* by the success of an old woman of Shropshire in treating dropsy. Although known to medicine since 1542, Withering's publication in 1785 gave this drug its prominence in the treatment of heart disease. Withering gave very sensible indications for its use which might well be followed with profit by a large element of the medical profession who are apparently as ignorant of how this drug acts as the old woman in Shropshire.

The efficacy of *cinchona bark*, in malaria, was first discovered by the American Indians. The bark was introduced into Europe through the efforts of the Jesuits, but was bitterly opposed for years by the medical profession. Up to a few years ago the pendulum had swung so far the other way that *quinin* was not only advocated for malaria but for colds, anæmia, pneumonia, dyspepsia and a host of other complaints. In malaria, where it could do good, it was usually interfered with by other ingredients in the prescription.

HOMŒOPATHIC REMEDIES FOR WHOOPING COUGH.

There is no occasion for my presenting a complete repertory for the symptoms of whooping cough. Those who wish to have recourse to such are referred to the work of Boenninghausen, "The Homœopathic Treatment of Hooping Cough," translated by Carroll Dunham,[16] or to any of the large and general repertories on the market. However, it is worth while to give his enumeration of those remedies which he considers sufficiently often indicated to warrant their mention.

"*To the First Stage.*—Aconite, Belladonna, Carbo an., Carbo veg., Causticum, Chamomilla, Conium, Dulcamara, Euphrasia, Ipecacuanha, Mercurius, Mezer., Nux vom., Pulsatilla, Sabadilla, Veratrum and Verbascum.

"*To the Second Stage.*—Ambra, Antimonium crud., Antimonium tart., Arnica, Cina, Cuprum, Digitalis, Drosera, Hepar, Ignatia, Iodium, Kali, Lachesis, Ledum, Lycopodium, Magnesia carb., Magnesia mur., Mercurius, Mezer., Natrum mur., Sambucus, Sepia, Silicea, Squilla, Stannum, Stramonium, Sulphuric acid, Veratrum and Zincum.

"*To the Third Stage.*—Arsenicum, Belladonna, Bryonia, Calcarea, China, conium, Dulcamara, Ignatia, Iodium, Kali, Kreosotum,

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[16] C. von Boenninghouson; a book of 290 pages, New York, 1870

Laurocerasus, Moschus, Muriatic acid, Phosphoric acid, Sambucus, Senega, Stannum, Sulphur, Zincum."[17]

The same author gives the following as having been found to be useful in epidemics; Arnica, Carbo veg., Cina, Cuprum, Drosera, Hepar, Kali, Nux vomica, Sepia, Silicea, Sulphur and Veratrum.

The following summary of the materia medica of whooping cough is taken from thirteen standard homœopathic reference books. The numbers following each drug indicate the sources from which the indications were derived, each number referring to the number in the appended list of references. The potency given with a reference is that author's recommendation.

ACONITE. Clear, ringing or whistling whoop with burning in the larynx and trachea, slight expectoration. Worse evening, or after midnight; fever, anxiety and restlessness. 1, 2, 3, 7 (3x alternated with ipecacuanha 2x in first stage), 12.

ANTIMONIUM TARTARICUM. Bronchitis, prostration, gasps for air at the start, sweating, worse at night. 4 (6x), 10, 12.

ARNICA. Wailing and crying, spitting blood, bloody diarrhœa, tendency to hæmorrhage. 1, 3 (3x), 4, 12.

ATROPIN. Periodic spasms, cyanosis, fear of choking, haemorrhages, vomiting. 3

BELLADONNA. Hot dry skin, epistaxis, with involuntary urination, no expectoration; worse at night; first stage with sneezing, retching, vomiting, abdominal pain and headache. 1; 2, 3, 3 (3x)

CARBO VEGETABILIS. At the beginning of the second stage, retching, headache, pain on swallowing, offensive expectoration. 1, 2, 3, 12

CINA. Rigidity, grinding of teeth in sleep, bed wetting; white, watery stools; face pale or cyanotic, sneezing, clucking sounds after paroxysm. 1, 3, 6, 12

COCCUS CACTI. With much vomiting and expectoration, especially in adults, of tough, white, stringy mucus; worse morning, appetite increased, frequent urination with tenesmus, marked choking. 1, 2, 3, 4, 6, 7

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[17] The last paragraph in this chapter is worthy of consideration by all. "We conclude, then, with Hahnemann's oft-repeated admonition: 'Follow the example set—follow it full of confidence—but follow *precisely* as it has been detailed!' And we do not hesitate to add: 'If after having done this, the expected result does not ensue, relate the whole course of proceeding, honestly, truly, and fully, that every expert may pass judgment upon it and then venture, in full confidence, to warn every one against the homœopathic treatment of Hooping Cough.'" *Ibid.*, pp. 27—28.

CONIUM. Scrofulous children, dry cough, nausea without vomiting especially after measles and scarlet fever. 1, 3

CORALLIUM RUBRUM. Violent paroxysms, preceded by a smothering feeling; short, quick, ringing cough, "minute gun cough"; later stages, anorexia. 1, 3, 6, 7 (12x)

CUPRUM METALLICUM. Convulsions, flexor spasms, paroxysms of sudden onset and lond duration relieved by a swallow of water; approaching *laryngismus stridulus*; cramps. 1, 2, 3, 4, 6, 9, 12

DROSERA. Barking cough, frequent paroxysms, retching and vomiting, cries a great deal; better while up and about, worse evenings and after midnight, worse by the day; pain in chest, epistaxis, comparatively light cases. Worse from drinking water. 1, 2, 3, 4, 6, 7, 8, 9, 11, 12, 13

HEPAR SULPHUR. Catarrhal stage, purulent, offensive expectorations, croupy cough hoarseness, worse evenings, worse fresh air; emaciation. Chilliness with hot cheeks and hands, sweating. 1, 2, 3, 4 (6x), 6

HYDROCYANIC ACID. Cyanosis, dryness of mouth and larynx with tickling; slow enfeebled respiration. Violent paroxysm; abdominal pain, vomiting. Acts through the nervous system. 1, 4 (3x , 11

IPECACUANHA. Nausea, with relief from vomiting; convulsive, persistent, gagging cough; copious, tenacious mucus; stiffening of limbs and cyanosis with paroxysms; craves sweets, worse from change in temperature. 1, 2, 3, 4 (3x), 6, 7 (2x), 9 (3x), 10, 11, 12

KALI BICHROMICUM. Late catarrhal stage, stringy, viscid mucus, hoarseness; ulcerations, rheumatic pains, general debility. 1, 6, 12

MAGNESIA PHOSPHORICA. Severe paroxysms; nervous temperament blue, swollen, livid face with marked whoop; worse at night; dry cough. 3, 5, 6 (30x), 9 (12x)

MEPHITES. Marked laryngeal spasm, prominent whoop, smothering with the cough, slight catarrhal symptoms, rare vomiting, exhalation difficult. 1, 3, 6, 10

NAPHTHALIN. Long-continued paroxysms almost with suffocation: dry cough with constriction of chest, especially in adults. 3, 6, 7 (1x)

NUX VOMICA. Dry cough, absence of fever, worse in the morning; vomiting; anxious and restless, worse from eating and drinking. 1, 2, 3, 12

PULSATILLA. Hoarseness, catarrhal symptoms predominate, much white, watery mucus; diarrhœa; worse evening, warmth; involuntary urination. 1, 2, 3, 12

STRAMONIUM. Restlessness, barking cough, bloody expectorations; trembling and jerking of limbs. 1, 3

SULPHUR. Retching, vomiting, hoarseness; pale, scrofulous children, offensive expectoration; worse damp, wet weather, worse fresh air. 1, 2, 3, 6, 12

VERATRUM ALBUM. Feverish, persistent cases, desire to sleep; weak circulation and respiration, cold sweats; thirsty: involuntary urination, vertigo. 1, 2, 3, 12

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12. Jahr, G H. G.: Therapeutic Guide. Forty Years' Practice. Trans. by C. J. Hempel, Phil., 1873

13. Farrington. E. A.: A Clinical Materia Medica. Edit. Farrington, H. Phil., 1908, p. 27

Having gone over the various drugs which have been described by homœopathic physicians in whooping cough, let us now go over a list of authors of homœopathic works and state which remedies these distinguished and successful men have found most useful in this disease. The list follows:

Hahnemann: *Drosera* 30 "cure every case."
Bahr: *Belladonna* and *cuprum metallicum.*
Bayes: *Drosera* 1x.
Joussett: *Hyoscyamus, cuprum, coccus cacti, naphthalin.*
Hardmann and Weaver: *Naphthalin* 1x,
von Grauvogel: *Naphthalin,* in one epidemic; *drosera; china,* in another epidemic; *arsenicum.*
Testes: *Corallium rubrum, chelidonium, pulsatilla.*
William Boericke: *Magnesia phosphorica.*
Hughes: *Aconite* and *ipecac, cuprum.*
Jahr: *Belladonna* as a prophylactic.

If homœopathic prescribing is based upon symptom similarity, it is well to look into the symptoms of those drugs which are prescribed in whooping cough on supposedly homœopathic grounds, and to ascertain through such literature as we command whether or not the grounds for such prescribing are actually homœopathic or of an empirical nature.

Aconite does give us the symptoms of coryza, chilliness, fever and catarrhal cough, met with in the first stage. It does not have paroxysms of coughing except to a slight degree when accompanied by a sore throat with burning of the fauces. Furthermore, there is no suggestion of a whoop to the cough. (Cyclopædia of Drug Pathogenesy, 1886; Ringer, S, Handbook of Therapeutics. 12th ed., N. Y. 1888)

Arnica causes a dry, irritative cough, and this is by no means a constant symptom of the drug. (Cyclopædia of Drug Pathogenesy).

Atropin. This drug has a definite action on the respiratory tract. In the first place, it stimulates respiration through its action on the respiratory center.[18] Second, slight atropin poisoning is attended with motor unrest and later chronic convulsions of a more or less periodic character, due to its action on the central nervous system.[19] Third, atropin through its influence on "all parasympathetic terminal nervous organs" depresses the tone of smooth muscles and the secretory activity of glands.[20]

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[18] Meyer & Gottlieb: Pharmacology. Halsey trans. Phil., 1914, p. 395.
[19] *Ibid.*, 24
[20] *Ibid.*, 155

Rossbach[21] showed by animal experimentation that this drug decreased tracheal secretion. Fourth, inasmuch as this drug tends to relax the spasms of involuntary muscle it might in sufficient doses tend to relax the bronchial spasm, causing the cough and the spasm which gives rise to the whoop.[22] Fifth, used in this way the action would be of an allopathic nature, but from the above pharmacological action the homœopathic physician ascertains more clearly the chief spheres of action of the drug, and is thus enabled to analyze the symptoms of provers and ascribe them to primary or secondary actions, *i.e.*, better to ascertain their true value in prescribing for conditions in disease.

In the provings[23] we find a dry, tickling cough, vomiting and a feeling of constriction in the larynx. These symptoms may be attributed to the depression of the secretory glands in the upper respiratory tract. The restlessness and muscular twitchings so commonly experienced are due to stimulation of the motor centers.

Belladonna has all the symptoms of its alkaloid, atropin, with the addition of those which may be attributed to hyoscin, the latter having a distinct narcotic action. Given in sufficient doses in whooping cough the hyoscin element may tend to quiet the patient. In the provings we find the dry or croupy cough, with a sense of constriction in the larynx, cyanosis, vomiting and convulsions. In the recent provings of the O. O. and L. Society we find: violent paroxysm of coughing excited by dryness of the throat; dry, hoarse cough, with expectoration of thick, nearly transparent, whitish mucus, worse from cold air; hacking cough,: one coughing spell brings on another. (Cyclopædia of Drug Pathogenesy. The Test Drug-Proving of the O. O. and L. Society. A Reproving of Belladonna. Edited by Bellows, H. P., Boston, 1906, p. 545)

Bromids. On the respiratory tract the influence of the bromids may be compared to that of atropin. Through the central nervous system we have a decrease of reflex activity, but instead of decreasing the activity of the glands of the upper respiratory tract, we find the secretion increased. The activity of these glands is ascribed to the irritation of the free bromin which is liberated from the hydrobromic acid, in which form the bromids are probably secreted in acid mucus.[24] Consequently the administration of bromids in sufficient doses in whooping cough would tend to allay the cough by decreasing the reflex irritability of the respiratory tract; and tend to decrease the liability to convulsions, as well as quiet the patient. Schulz[25] sees in the manifestations of the bromids a similarity to the symptoms of whooping cough, and draws attention to the fact that both the drug and the disease have selective affinity for the same portion of the respiratory tract, and explains its action on this ground.

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[21] Ringer, S.: Handbook of Therapeutics, 12th ed. N. Y., 1888, p. 321

[22] Cushny. A. R.: Pharmacology and Therapeutics. N. Y., 1915, p. 383

[23] Cyclopædia of Drug Pathogenesy, 1886

[24] Meyer & Gottlieb, *loc cit.*, p. 114

In the records of provings and poisonings it is essential to exclude those where the vapor has been inhaled, as these cases give the respiratory symptoms found on internal administration in a more severe form with variations which will be considered later. We have coryza, sneezing and loose cough similar to that of the first stage of pertussis; tickling and a sense of constriction in the larynx; obstinate cough, bronchitis; and a profuse secretion of bronchial mucus; cyanosis, nausea and vomiting. (Cyclopædia of Drug Pathogenesy.)

Coccus cacti. In the provings of this remedy, the cough appears to be due to an irritation in the throat and larynx, but there is nothing further characteristic of pertussis either in the cough itself or the general symptoms. Its use in whooping cough, therefore, would appear to be almost entirely on an empirical basis, that is, the symptoms are these exhibited by patients relieved after the administration of this remedy, rather than on the results of provings. (Cyclopædia of Drug Pathogenesy.)

Corallium rubrum. The provings of this remedy show no similarity to any case of whooping cough I have met. A perusal of the provings would never lead me to think of it in the treatment of whooping cough. Its reputation in the treatment of this disease by homœopathic physicians must be based on empiricism, as the guiding symptoms of this remedy derived from actual provings would hardly justify its classification of a homœopathic remedy for pertussis. (Cyclopædia of Drug Pathogenesy.)

Cuprum. A study of the cases of poisoning in the Cyclopædia of Drug Pathogenesy fails to impress the reader that the symptoms of acute or chronic copper poisoning produce any constant symptoms similar to those of whooping cough. In only one of the thirty-one cases described do we find cough. In number 25 we have: "occasional paroxysms of coughing unattended with any physical signs of disease of lungs,"[26] and in number 29: "very intense dyspnœa with laryngeal and bronchial spasm."[27] This would hardly seem to justify the place which cuprum holds as a homœopathic remedy for whooping cough.

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[25] Schulz, Hugo: Wirkung und Anwendung der unorganischen Arzneistoffe Leipzig 1907, p. 70. (This author is not a member of the homœopathic school, although a student of homœopathy. He is director of the Pharmacological Institute of the University of Greifswald.)

Nevertheless Schulz[28] informs us that the symptoms of copper poisoning consist of catarrh of the larynx with marked hoarseness and prolonged cramp-like paroxysms of coughing which are worse at night. Unfortunately, this old school author does not give us the sources of this information. The emetic action of the copper salts seems to be entirely due to their local irritant action on the gastric mucosa.[29]

Drosera rotundifolia: This drug warrants special consideration here, because it became famous as a remedy in whooping cough on the recommendation of Hahnemann, who based his indications on the observations of Wislicenus, one of the first provers.[30] In these first eight provings only two subjects experienced a cough. In one it was by no means characteristic of pertussis, while in Wislicenus the symptoms are not remarkable for their similarity to this disease. That part of this latter proving in which Hahnemann found his indications reads as follows: "Deep down in the fauces (and on the soft palate) a rough, scraping sensation of dryness exciting short cough, with yellow, slimy expectoration and hoarseness of the voice, so that it is only with an effort that he can speak in a deep bass tone; at the same time he feels an oppression of the chest, as if something there kept back the air when he coughed and spoke, so that the breath could not be expelled (lasting several days.)"[31]

The Cyclopædia of Drug Pathogenesy throws no new light on the subject. A later proving, recorded by Allen as number 9, was that of E. B. Shuldham.[32] This was by inhalation of the steam from hot water to which an indefinite amount of the tincture was added. The prover had no cough, much less a whoop. Hering's "Guiding Symptoms" and Allen's "Encyclopædia of Pure Materia Medica" give a whoopy cough as an indication based only on symptoms recorded under the administration of the drug during disease.[33] Such indications then are purely empirical, and have no more to do with homœopathy than alloeopathy; in other words, nothing whatever. On this point I take the most decided exception to those followers of Hahnemann who use such symptoms indiscriminately with the symptoms of actual provings. They may be following Hahnemann, but this author uttered many statements which have no connection with homœopathy except indirectly by the fact that he was their author. Furthermore, his indications for this remedy are as arbitrary as his recommendation that "a single smallest dose of the thirtieth potency is quite sufficient to effect a cure."[34] Unless further provings warrant the use of *drosera* in whooping cough it would appear that this drug is not indicated on homœopathic grounds in the treatment of this malady.

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[26] Quoted from Salter, Boston Med. & Surg. Jour., lv, 121

[27] Quoted from Arch. de Medecine Navale, Jan., 1865

[28] Schulz. H.: Unorganische Arzneistofle, p. 292

[29] Cushny A. R.: Pharmacology & Therapeutics. Phil., 1915, p. 659

[30] Hering, C.: Guiding Symptoms. Phil., 1887, v, 152

[31] Hahnemann, S.; Materia Medica Pura. Edited by Dudgeon, R. E., & Hughes, R. Liverpool, 1880, 1, 576

[32] Monthly Homœopathic Review. London, 1871, xv, 299

Magnesium. The various salts of this metal have won repute in the hands of homœopathic prescribers in the treatment of pertussis. von Boenninghausen[35] preferred *magnesium metallicum,* while William Boericke and Dewey found *magnesia phosphorica* in the 30th "given steadily" especially useful.[36] In the Cyclopædia of Drug Pathogenesy we find under *magnesia sulphurica:* fluent coryza, sneezing; frequent, dry cough, burning in the larynx, hoarseness, epistaxis, chilliness; tickling cough. When magnesium is injected intravenously into animals "it appears to have some effect on the myoneural receptors in muscle, for it arrests the twitchings induced by physostigmin and in large doses interrupts the path from nerve to muscle in the same was as curara."[37] Such injections may paralyze the respiratory center.[38] Schulz[39] gives as the symptoms of magnesium poisoning: coryza, epistaxis; feeling of pressure and tickling in the larynx with paroxysms of cramp-like cough; bronchial catarrh with painful raising of secretion and difficulty in taking a long breath. Unfortunately he does not give us the sources of these symptoms so valuable to the present discussion.

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[33] If it were shown that drosera actually aggravated the whooping cough of pertussis this would be of interest and possibly of value from a homœopathic standpoint, but this cannot be gleaned from the literature.

[34] Quoted by von Boenninghausen, C. The Homœopathic, Treatment of Whooping Cough. Trans. by Dunham, C. N. Y., 1870, p. 21

[35] von Boenninghausen, C. The Homœopathic Treatment of Whooping Cough, p. 80

[36]. Dewey, W. A.: Practical Homœopathic Therapeutics, 2d ed., Phil., 1914, p. 376; Boericke, W., and Dewey, W. A. The Twelve Tissue Remedies of Schuessler, 5th ed. Phil., 1914, p. 340

[37] Cushny: *loc. cit.,* 566

[38] Meyer and Gottlieb: *loc. cit.,* 202

[39] Schulz, H.: *loc. cit.,* 238

Zincum. The condition known as brass-founder's ague, due to inhalation of zinc fumes, gives rise to a dryness of the throat with a hard cough, constriction and soreness of the chest, nausea and vomiting, headache and profuse perspiration. Zinc seems to depress the central nervous system. Schulz gives the following symptoms of zinc posioning: coryza, catarrh of the larynx and trachea. The mucous secretions are not much increased, but sometimes contain blood. There is a nervous, tickling cough. In the twenty pages devoted to this metal and its salts in the Cyclopædia of Drug Pathogenesy, cough is mentioned not more than three times, and the character is not given. Coryza, chilliness, chill, feverish feeling, sweats and night sweats, are characteristic. The coryza is much more constant from inhalations of the fumes of this metal than where it has been taken into the stomach. Speaking generally, it does not appear that zinc or its salts show any marked proclivity for the respiratory system, except perhaps the nose; consequently I fail to see the justification for the asserted homœopathicity of zinc in whooping cough.

We now come to a consideration of those drugs known as *Expectorants* and *Emetics.* These may be divided into three classes. First, those which show a definite proclivity for the respiratory tract; second, those which show such a proclivity, but in which the reflex from their emetic action augments the respiratory symptoms; third, drugs whose respiratory symptoms are entirely dependent upon a reflex accompanying their emetic action. In my opinion this classification should be more clearly borne in mind in all homoeopathic prescribing. The cough of ammonium chlorid and apomorphin, for instance, may be very similar, but the origin in each case is very dissimilar and consequently the other attending symptoms are not the same.

The consideration is particularly appropriate to the relation of drugs to whooping cough, because in this disease the seat of the cough lies in the direct irritation of the respiratory tract, and the interference with functions of the cilia by the growth of the Bordet-Gengou bacillus. In the course of this disease we may have retching and vomiting during or following a paroxysm of coughing and whooping, but this is a reflex from the respiratory tract. The result is that nausea is rarely present except at the moment of the retching.

Another point to be kept in mind is that the cough of the disease is of mechanical origin, while from drugs, except by the inhalation of insoluble particles, the cough has a chemical origin. Of course the action of fumes by inhalation is a direct local action, and this must not be confused with the action derived from the ingestion and absorption of drugs which have a selective action on the respiratory tract. Unfortunately, this confusion does exist in the homoeopathic materia medica. The direct effect of the inhalation of fumes of a drug on the respiratory mucous membrane may be very similar to the action of the drug on this tissue after its absorption and transportation by the blood to the respiratory tract. But in the first instance, the ammonia fumes, for instance, are brought in direct contact with the cells, while in the latter instance a salt of ammonium is brought to these cells. In the first case it is brought to the superficial cells first, and affects them most. In the second case, all the cells of the body are bathed in this ammonium salt simultaneously and those showing the strongest chemical affinity will attract the most and react accordingly; in the respiratory tract such an affinity is almost equally distributed. The results of inhalation of ammonia fumes and of ingestion of ammonium salts differ primarily in the fact that in the first case the cells highest up in the tract will be injured more severely than those lower down where the residual air will dilute the fumes already weakened by the absorption of ammonia by the upper cells. Eventually the cells of the lower tract will combine with ammonia absorbed by the blood, but this effect will always be less than where the strong fumes come in direct contact. Furthermore, the respiratory center is stimulated by stimulation of the nerve endings of the trigeminal and olfactory nerves in the nose. This reflex stimulation of the respiratory center is the basis for the use of ammonia, vinegar and smelling salts for fainting. When too strong, this reflex instead of stimulating respiration, temporarily checks all breathing during inspiration, and the individual chokes.[40]

The anatomy and physiology of the respiratory tract need not be entered into here except as they contribute to an understanding of the effects of the disease, and the symptoms of drugs. There is no ciliated epithelium in the alveoli or terminal bronchi, and none is found above the larynx. It will be remembered that the ciliary involvement is the chief seat of the pathology of partussis. The unstriped bronchial muscles act in conjunction with the cilia in raising mucus and foreign material to the mouth for expectoration. In removing mucus from the alveoli or terminal bronchioles where no cilia exist, the action of these muscles is essential, for, as already stated, neither of these have cilia to perform this function. This unstriped muscle of the lower respiratory tract is controlled by constriction and dilating impulses arriving through the nervous system by way of the vagus. Furthermore, the result of these impulses is an ascending peristaltic action analogous to the normal descending peristaltic motions of the intestines. Einthoven[41] has shown that these rhythmic contractions of the unstriped bronchial muscles may go on spontaneously, independent of the nerves which regulate them. Whether or not drugs having an expectorant action exert any direct influence on these muscles has not been determined.

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[40] It is a pity that this last is not more fully appreciated in etherising for surgical operations. If the ether is administered slowly this reflex is gradually abolished through the effect of the ether absorbed on the central nervous system so that no choking results.

Salts of the sodium chlorid[42] group including sodium chlorid, ammonium chlorid, potassium chlorid, lithium chlorid, sodium bromid, ammonium bromid, lithium bromid, calcium bromid, strontium bromid, sodium iodid, ammonium iodid, potassium iodid, potassium nitrate, sodium nitrate and potassium chlorate may exert an expectorant action by increasing the secretion of mucus. Inasmuch as these salts are partly excreted in the respiratory tract their presence in the mucous membrane through which they pass brings about an increased secretion of water. This increase in the water content is the result of osmotic influences in the epithelial cells. At the same time these secretions are rendered more alkalin (by the presence of alkalin carbonates), and this increased alkalinity diminishes the viscosity of the mucus, because, "the tenacity of the mucus is diminished as its alkalinity rises."[43]

Ammonium chlorid exerts a pronounced influence in this direction because the ammonium carbonate markedly liquefies the mucus and stimulates ciliary activity as well.[44]

The bronchial secretions are also affected by drugs of the emetic group including apomorphin, ipecac and this alkaloid emetin, and the salts of antimony. Rossbach showed by animal experimentation on the exposed trachea that emetin, apomorphin and pilocarpin[45] arriving through the blood increased the tracheal secretion, while atropin and its allies acted in the reverse way. The expectorant action of these drugs resulting from this increased secretion of mucus is a part of their emetic action. Whenever nausea is present there is a tendency to increased bronchial and tracheal secretion, although conflicting phenomena may prevent this from becoming apparent.

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[41] Quoted by Meyer and Gottlieb: *loc. cit.*, 342

[42] Tyrode, M. V.: Pharmacology. Phil., 1908 pp. 203-204

[43] "Small quantities of CO2, ether and ammonia stimulate the ciliary movements, while larger amounts depress them." Meyer and Gottlieb: *loc. cit.* 342.

[44] Quoted by Ringor: *loc. cit.*, 321

Apomorphin induces emesis through its selective action on the medulla oblongata, as has been demonstrated by pharmacologic experiments which need not be cited here. Consequently, all the symptoms attendant upon emesis occurring with this drug are merely the result of reflex action. The symptoms include an increase in the secretions of the bronchial mucous glands as well as the increase in sweat and tears and the mucous secretions of the nose and throat.[46] Since these secretions are not increased when the dosage is insufficient to produce the slightest nausea, it would appear that the action of this drug is far removed from the phenomena occurring in whooping cough.

Ipecac, through its alkaloid emetin, brings about an emetic action by a direct local irritant action on the mucous membrane of the stomach. Furthermore, emetin exerts an irritant action on all mucous membranes.[47] Consequently we have a triple effect from this drug on the mucous membrane of the respiratory tract. In the first place, the irritation of the gastric mucosa brings about a reflex, through vagus excitation, which stimulates peristalsis in the bronchial tubes; secondly, the irritation of the gastric mucosa, inducing nausea and vomiting, reflexly stimulates the bronchial secretion as well as the secretions of the trachea, larynx, throat, nose and conjunctivæ. In the third place, the emetin absorbed may act directly upon these mucous secretions, thus augmenting the result of the reflex stimulation. The occasional emetic action following the hypodermic administration of emetin is explained by the local effect of this alkaloid when it reaches the stomach, although it may possibly in some individuals directly stimulate the vomiting center in the medulla. Under these circumstances we should have an even more complicated action of this drug on the respiratory tract.

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[45] The œdema of the lungs following poisoning from pilocarpin in man is thought to be due to the slowing of the circulation through the lungs by the weakened heart action rather than through the expectorant action of this drug. Cushny: *loc. cit.*, 342

[46] On the cat and dog, morphin has much the same action as apomorphin in this respect, producing marked salivation, nausea and vomiting. In certain instances in man the vomiting center in the medulla may be particularly susceptible to this action, resulting in nausea, vomiting and defæcation from the fact that the depressant action of this drug on the higher centers is insufficient to overcome the stimulating action on the medulla and cord.

[47] This is especially marked on those individuals showing an idiosyncrasy to ipecac where after minute doses we get "considerable swelling and injection of the conjunctival and nasal mucous membranes, with salivation, tears, sneezing, coughing, and bronchial catarrh." Cushny, *loc. cit.*, 437

Tartar emetic (antimony and potassium tartrate, or the double tartrate of antimony and potassium, $K(SbO)C_4H_4O_6$, was at one time thought to exert its action in part through the potassium, but it has been shown that the emetic action produced is the result of the antimony content alone.[48] In the stomach the antimony is dissociated and acts as an irritant. Since it is not readily absorbed, this irritation is prolonged until it is vomited or passed out of the duodenum. Large quantities injected intravenously induce vomiting and purging, but this effect is produced by much smaller doses by mouth, thus proving that it is the local effect of the antimony on the stomach, rather than a central emetic action. The vomiting of antimony is accompanied by diarrhoea, sweating, collapse, cold perspiration and salivation similar in many respects to arsenic and many other poisons which produce profound gastro-intestinal irritation.

Since the action of the emetic drugs on the respiratory tract is comparatively well established by pharmacological experiments to be due largely to reflexes, the respiratory symptoms found in provings and poisonings may be analyzed to show that they bear very little relation to the causative symptoms of whooping cough. *Ipecac* is the only exception, and here only when an idiosyncrasy exists. With *apomorphin*, the respiratory tract is influenced through the action on the medulla, for removed from the exciting factors of the coryza and cough in pertussis. In *ipecac* and *tartar emetic* the cough and increased bronchial secretions are largely secondary to the gastric irritation, the reverse being the case in whooping cough. *Ipecac*, however, may, like the sodium salts, have a proclivity for the respiratory mucous membranes. It is to be borne in mind that the sodium salts bring about their expectorant action through osmotic and chemical changes in the epithelial cells while the symptoms of the second stage of pertussis are largely the result of mechanical interference with the function of the cilia. *Ipecac*, then, may in certain cases exert a homœopathic action in pertussis, especially as the respiratory tract is more likely to be influenced by this drug in children than in adults;[49] but even so, it requires considerable imagination to see a marked homoeopathicity of this drug to the disease in question. Were *ipecac* to stand out as especially efficacious in the treatment of whooping cough its *modus operandi* might be construed on these grounds. The provings show little to suggest pertussis except the coryza and bronchial cough of the early stage which is in most respects similar to the onset of a variety of affections of the respiratory tract, including hay fever, common colds, and even measles. Consequently, *ipecac* may command a place in the homœopathic treatment of the first stage. In the later stages its homoeopathicity is dubious, and its efficacy, according to the testimony of the homoeopathic literature and according to my own hospital experience, corroborates this statement.

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[48] Cushny, *loc. cit.*, 618

What drugs the homoeopathic to whooping cough? This question is answered by the contents of this thesis, and it would be difficult and hazardous to make affirmative statements in this respect. Briefly we may say, that *drosera, corallium rubrum, coccus cacti, zincum, apomorphia* and *tartar emetic* do not show by their pharmacological action or provings on healthy subjects to have sufficient similarity to the nature or symptoms of pertussis to warrant their homoeopathic use. *Aconite, ipecac, belladonna, cuprum,* and *magnesia* would appear to be indicated on homoeopathic grounds, and their reputation in the hands of homoeopathic physicians, other than myself, would seem to warrant their further use and study in this disease.

The results of my many failures in the homoeopathic treatment of whooping cough may be explained by the ignorance. Had I carried out this study previous to the two epidemics of whooping cough, I might have been able to give a more optimistic and a more valuable contribution to homoeopathic literature from my clinical experience. As it is, my clinical failures in the treatment of this scourge prompted me to take this study. Certain errors in my prescribing are now apparent to me. By publishing this, it is to be hoped that others will escape the pitfalls of the homoeopathic materia medica into which I fell.—The *New England Medical Gazette*, June, 1917.

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[49] Meyer and Gottlieb : *loc. cit.*, 343

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THE PSYCHOPATHOLOGY OF PROSTITUTION.

By Morris J. Karpas, M.D.,

New York.

Of all the social psychiatric questions, prostitution is one of the most important because of its relation to society. The solution of the problem, however, is complex, because of the many underlying factors that determine this abnormal reaction. Indeed, this issue is not purely psychological or medical, but it embraces the economic, sociological, and penal phases, knowledge of all of which is essential for thorough understanding of this subject.

It should be borne in mind that the practice of prostitution is not a product of modern civilization, for it has existed ever since the marriage institution. In early Biblical time prostitution had already been engaged in, and we find in Genesis passages to this effect: "When Judah saw her [his daughter-in-law, Tamar] he thought her to be a harlot; because she had covered her face. And he turned unto her by the way, and said, Go to, I pray thee, let me come in to thee!" And in Numbers: "And Israel abode in Shittim, and the people began to commit whoredom with the daughters of Moab. And they called the people unto the sacrifices of their gods; and the people did eat, and bowed down to their gods. And Israel joined himself to Baal-Peor; and the anger of the Lord was kindled against Israel. And the Lord said unto Moses, Take all the heads of the people and hang them up before the Lord against the sun that the fierce anger of the Lord may be turned away from Israel." Likewise in Deuteronomy: 'There shall be no whore of the daughters of Israel, nor Sodomite of the sons of Israel. Thou shalt not bring the hire of a whore, or the price of a dog, into the house of the Lord thy God for any vow; for even both these are abomination to the Lord thy God." It is interesting to note that the strong Hebraic opposition to prostitution was based upon the fact that it disturbed the family relationship, encouraged excessive venery by reason of the numerous sexual objects, and produced strife which was common at that time.

It is well known that man requires friends all his life-time. Aristotle explains this in the ninth book of his Nikomachean Ethics. When man is in good health and prosperous, he enjoys the company of all his friends; in the time of trouble he is in need of them; in old age, when his body is weak, he is assisted by them. This love is more frequent and more intense between parents and children and among other relations. Perfect love, brotherhood, and mutual assistance is only found among those near to each other by relationship. The members of a family united by a common descent from the same grand-father or even from some more distant ancestor have toward each other a certain feeling of love, help each other and sympathize with each other. To effect this is one of the chief purposes of the Law. Professional harlots were therefore not tolerated in Israel (Deut. 23: 18) because their existence would disturb the above relationship between man and man. 'Their children are strangers to everybody; no one knows to what family they belong; nor does any person recognize them as relatives. And this is the greatest misfortune that can befall any child or father. Another important object in prohibiting prostitution is to restrain excessive and continual lust; for lust increases with the variety of its objects. The sight of that to which a person has been accustomed does not produce such an ardent desire for its enjoyment as is produced by objects new in form and character. Another effect of this prohibition is the removal of a cause for strife; for if the prohibition did not exist, several persons might by chance come to one woman and would naturally quarrel with each other; they would in many cases kill one another or they would kill the woman. This is known to have occurred in days of old, "as they assembled themselves by troops in a harlot's house" (Jer. 5: 7.) In order to prevent these great evils and to effect a great boon that all men should know their relationship to each other, prostitutes (Deut. 23: 17) were not tolerated, and sexual intercourse was only permitted when a man has chosen a certain female and married her openly; for if it sufficed merely to choose her, many a person would bring a prostitute to his house at a certain time agreed upon between them, and say that she was his wife (1).

The relation of prostitution to primitive relagious worship is well known (2). The underlying motives of such rites was to discharge a sacred religious function of a definite mission. All women in Cyprus before marriage were compelled to have sexual relations with strangers at the sacred place of the goddesses, commonly known as Aphrodite, Astarte, etc. In many parts of Australasia similar customs were followed. In Babylon women, no matter whether rich or poor, were obliged once in their life to consort with strangers at the temple of Mylitia and the money earned was dedicated to the goddess Ischtar or Astarte. In the words of Frazer, "The sacred precinct was crowded with women waiting to observe this custom. Some of them had to wait there for years. At Heliopolis or Baalbec in Syria, famous for the imposing grandeur of its ruined temples, the custom of the country required that every maiden should prostitute herself to a stranger at the temple of Astarte, and matrons as well as maids testified their devotion to the goddess in the same manner. The Emperor Constantine abolished this custom, destroyed the temple, and built a church in its stead" (3).

The women in Phœnicia practised prostitution for religious purposes, as they were imbued with the idea that by such conduct they would ingratiate themselves into the graces of the goddess. In Byblus there was a custom that the people had to shave their heads every year as an expression of mourning for Adonis. Those women who refused to do so were obliged to have relations with strangers for money which was utilized for the goddess. Sumner (4) refers to the existence of secred harlotry in Egypt and under the Cæsars.

Survivals of sacred harlotry are found in historic Egypt. Even under the Cæsars the most beautiful girl of the noble family of Thebes was chosen to be consecrated to the Temple of Ammon. She gained honor and profit by the life of a courtesan, and always found a grand marriage when she retired on account of age. In all the temples there were women attached to the service of the gods. They were of different grades and ranks and were supposed to entertain the god as harem women entertained princes. In the temples of goddesses women were the functionaries and obtained great honor and power.

The ethical phase of prostitution has always been an object of considerable discussion, and it is interesting to note that there are moralists who uphold this practice. Indeed, Augustine spoke in behalf of prostitution and Aquinas (5) said: "Prostitution in towns is like the sewers in the palace; take away the sewers, and the palace becomes an impure and stinking place." Lackey defends it as follows:

> Under the circumstances, there has arisen in society a figure which is certainly the most mournful, and in some respects the most awful, upon which the eye of the moralist can dwell. That unhappy being whose very name is a shame to speak; who counterfeits with a cold heart the transports of affection; who submits herself as the passive instrument of lust; who is scorned and insulted as the vilest of her sex, and doomed, for the most part, to disease and abject wretchedness, and an early death, appears in every age as the perpetual symbol of the degradation and sinfulness of man. Herself the supreme type of vice, she is

ultimately the most efficient guardian of virtue. But for her, the unchallenged purity of countless happy homes would be polluted, and not a few who, in the pride of their untempted chastity, think of her with an indignant shudder, would have known the agony of remorse and of despair. On that degraded and ignoble form are concentrated the passions that might have filled the world with shame. She remains, while creeds and civilizations rise and fall, the eternal priestess of humanity, blasted for the sins of the people.

Others maintain that prostitution "is a necessary evil, and at best a beneficent institution, the bulwark of the home, the inevitable reverse of which monogamy is the obverse" (6).

THE NATURE AND CHARACTER OF PROSTITUTION.

The underlying nature and character of prostitution has been very carefully investigated by students of political economy and psychology. There are two conceptions. One, advanced by the economist, is that prostitution is the result of economic and social conditions; the other, maintained by the psychologist, is that this abnormal phenomenon has its root in the mental structure of the individual.

The economic phase—Such observers as Bebel, Hirsch, Parent-Duchatelet, and others support the economic theory on the ground that a large majority of prostitutes are domestic servants, factory and shop girls, waitresses, saleswomen, and other underpaid wage earners. Since their occupations are irregular and seasonal, they are forced to embrace prostitution because of economic stress. Parent-Duchatelet states (7): "Of all the causes of prostitution, particularly in Paris, and probably in all large cities, none is more active than lack of work and the misery which is the inevitable result of insufficient wages." In Berlin it was also noted that during the hard times the number of prostitutes were on the increase. This is also true of America and Japan. According to Maude Miner (8), over fifty per cent. of the women investigated by her were employed in factories or as domestic servants; and the other girls had positions in stores, restaurants, offices, etc.

Comparing the percentages of these prostitutes who had been in different kinds of work to the percentage of women wage earners in the same occupations in general population of New York city, according to the Census of 1910, we find that servants, waitresses, saleswomen, clerks in stores, and theatrical workers contribute more than their quota to prostitution; that factory employees and telephone operators contribute almost exactly the percentage we should expect; and that clerical workers, bookkeepers, stenographers, dressmakers, and milliners contribute less than their share. It is significant that all the occupations contributing less than their quota require skill and preparation for work. Wages received by girls before entering prostitution were for the most part low.

On the other hand, there is sufficient statistical evidence to the effect that the economic element is much exaggerated by the socialistic economist and social service worker. Stromberg (9) found that out of 462 prostitutes there was not a single case in which the economic cause was the determining factor. Welander (9) in his studies of prostitutes in Stockholm found that sixty per cent. of them were previously in domestic service and were in comfortable circumstances. Leonhard's results (9) are practically the same. In the 100 Dusseldorf prostitutes, poverty was not considered as a cause. The same author examined 500 other records in Dusseldorf and likewise could not establish economic reason for prostitution. Hammer's investigations (7) reveal that out of ninety registered German prostitutes there was not a single case in which low economic conditions played any role. In Bedford Reformatory, out of 279 cases, in only nineteen were economic conditions thought to be responsible for prostitution. To quote Kneeland (10): "The surprising thing is that very few directly economic reasons are given. It might be supposed that in friendly conversation a girl would wish to make the greatest possible excuse for herself, and that the one most ready to hand would be the inability to earn a living. But in only nineteen cases was this given as an excuse; and by referring to a similar table for street cases, it will be noticed that only 139 out of 1,106 gave a directly economic reason."

There is no doubt that undue stress is laid on the economic and social issue, and that the evidence so far adduced is not conclusive and adequate. The very fact that the large majority of prositutes come from domestic service should serve as a strong argument against the economic theory. It should be borne in mind that servants are always in great demand; they are fairly well paid, and during their employment they are provided with shelter and food. Another important point to be emphasized is that in instances where these women were driven to prostitution because of poverty, they were in reality constitutionally inefficient to compete with their fellow beings; in other words, the so called economic factor should be looked upon as a symptom rather than a cause of this condition.

The mental phase.—With the advent of scientific psychiatry, studies of social psychopathological phenomena have received more careful and profound investigation. Prostitution was one of the subjects that engaged the attention of the psychiatrist. Unfortunately, however, the studies have only been directed along the objective lines; either too much emphasis was laid on the purely anthropological relations or wholly on intellectual phases of mental activity. Lombrose was the first to call attention to the fact that prostitution is a natural expression of a criminal predisposition—in other words, an expression of a congenital morbid instinct. In the words of Lombroso (11): "Prostitution largely takes the place of crime for women, thus explaining why women seem less criminal than men, and also giving a probable reason why female criminality is greatest in all ages when prostitution no longer offers a profession." Thus according to Lombroso and his pupils, prostitution is a type of moral imbecility closely related to constitutional criminality. Aschaffenburg, Lombroso's strong opponent, admits that there is a strong relationship between the male criminal and the prostitute. Indeed, the study of the Jukes family forms an excellent illustration: the female element was represented by harlots, whereas the male members were criminals, alcoholics, etc.

Tarnowsky (12), a pupil of Lombroso, studies prostitutes in

Russian prisons and found that they presented striking anatomical stigmata peculiar to the prostitute. Bonhoeffer (13) found that out of 190 prostitutes, fifty-three were feebleminded, 102 displayed anatomical hereditary stigmate of degeneration, most of them had one or both parents alcoholic, and in one third of the cases no definite mental anomalies were noted. Kneeland's (14) material consisted of 647 cases, twenty-one insane and 107 distinctly feebleminded.

Not all of our 647 cases have been examined by our psychologic. One hundred and sixteen, however, have had laboratory tests of various sorts. Among these tests all have been given the Binet tests. The result has been as follows:

MENTALITY BY BINET TEST.

Showing mentality of 5 year old child	2
Showing mentality of 6 year old child	1
Showing mentality of 7 year old child	6
Showing mentality of 8 year old child	6
Showing mentality of 9 year old child	29
Showing mentality of 10 year old child	44
Showing mentality of 11 year old child	26
Showing mentality of 12 year old child	2

The forty-four who have the mentality of a ten year old child and under were unhesitatingly pronounced mentally defective. The seventy-two showing mentality from ten to twelve years may possibly not be so called. The sixtyseven others included among the 107 are those so mentally defective that there can be no question as a matter of observation. Fifty-two others are distinctly borderline cases. This is the group which gives the most trouble in all reformatory institutions. It is safe to say that ninety per cent. of all disciplinary difficulties come from cases of this sort. They can be easily divided into at least two groups. Thus divided, twenty-six are girls who can be taught very little in school, whose general intelligence is low, but who may perhaps be able to learn a certain amount of manual labor; these cannot "stay good" any length of time. The other twenty-six are those who do well in school, are capable of mastering even such subjects as algebra and bookkeeping, but who have no moral sense or continuity of purpose. Eleven others are also properly in this class, but differ from the two preceding groups in the character of their instability. If they were boys, they would be tramps. They are all girls who have run away from home, sometimes a number of times, as well as from any place where they are put to service.

The foregoing figures mean that 193 individuals, or 29.8 per cent. of the number studied, are decidedly mentally defective. This is an extremely conservative estimate.

Maude Miner (15) found that only one third of the women whose cases she investigated were feebleminded. Goddard (16) states: "As to actual statistics on this subject, we have almost none. One very significant record comes from Geneva, Illinois, made by the same Doctor Bridgmen whom we have already quoted. She found that out of 104 girls in the reformatory who were committed for immoral life, ninety-seven per cent. were feebleminded. This does not by any means indicate that ninety-seven per cent. of prostitutes are feebleminded, because it is only natural to expect that the feebleminded ones would be the ones to be caught and sent to an institution. This figure, nevertheless gives some idea of the prevalence of feeblemindedness in this traffic. Many competent judges estimate that fifty per cent. of prostitutes are feebleminded." Walter Clarke (17), the field secretary of the United States Social Hygiene Association, collected 1,872 cases of prostitutes who were examined according to the Binet-Simon test, and the result shows a wide variation of feeblemindedness ranging from twenty-nine to ninety-seven per cent. In Magdalen Home, during the year 1916, ten per cent. of its inmates were pronounced feebleminded.

The sexual life in the prostitute offers another interesting topic of Study. Such investigators as Riccardi, Lombroso, Parent-Duchatelet, von Maschka, and Moraglia observed ont only homosexuality among them but also sadism, masochism, fetichism, sodomy, and sexual excitement with masturbation following the drinking or perceiving of the odor of men's urine or feces. Again

Lombrose encountered frigidity among prostitutes. Merrick (18) studied 16,000 prostitutes in London and found that only few of them adopted prostitution because of intense sexual desires. Moraglia (19) found masturbation prevalent among the 180 prostitutes in the North Italian brothels, and he noted the same thing among the twenty-three prostitutes of the higher grade. Homosexuality is not as common as masturbation, yet it is of frequent occurrence. It is more prevalent in England than in France. Anna Ruling (20) declares that twenty per cent. of the Berlin prostitutes are homosexuals, and Moll (21) estimates twenty-five per cent. Hammer (22) found that twenty-three out of twenty-five prostitutes in reformatories practised homosexuality. Hirschfield (23) states that the Berlin prostitute frequently accosts better class women on the street, and accepts very small or no remuneration for sexual relations with their own sex. Freud (24) maintains that the polymorphous pervert can be demonstrated in a large number of prostitutes. "The same polymoaphous or infantile disposition fits the prostitute for her professional activity, and in the enormous number of prostitutes and of women to whom we must attribute an adaptation for prostitution, even if they do not follow this calling, is absolutely impossible not to recognize in their uniform disposition for all perversions the universal and primitive human."

GENERAL INTERPRETATIONS.

Before attempting to interpret this vital and intricate problem, it would be advisable to refer to special statistical data obtained from the Magdalen Home. The material consists of twenty-five women who were committed to that institution for immorality. Seventeen of them began to lead an immoral life between the ages of sixteen and twenty years; and eight between twenty and twenty-four. The direct cause for this life was "a desire for a good time" in seven cases; eight were seduced "in bad company"; four were "in need of money"; four "for the love for a man"; and only in two feeblemindedness figured as a cause. Three of them were legally married; the civil condition in three was questionable; and nineteen were single. In looking over the records of the twenty-three women who were not feebleminded, one finds that these cases presented signs of mental inferiority which was characterized by instablility, suggestibility, waywardness, lack of responsibility, lack of feeling, etc. In all of them, the question of an actual economic cause was of no significance.

The following cases will serve as illustrations to demonstrate the development of prostitution:

Case I.—J. was a woman thirty-five years of age, of a limited education. At the age of thirteen years she began to work in a factory, earning from $8 to $12 a week. At the age of fifteen and one half years she had her first sexual experience, and soon following this she embraced prostitution. It is important to note that she was not pregnant at that time. Speaking of that particular experience she said, "It was by force and not by force." She admitted that her seducer encouraged her to become a prostitute. She stated that she consorted with many men, but she had no sexual feeling for them. "Money was the fascination for me; you did not have to work hard." When she was asked to describe her ideal, she said, "A dark haired man; but really it was the money that appealed to me."

Case II.—R. was a woman twenty years of age. She was brought up in a small town in the State of New York. At the age of fourteen years she left school, Grade 7A. Soon after leaving school she began to work in a factory, earning from $8 to $10 a week. At sixteen she came to New York to look for a position. At the age of sixteen and one half years she had her first sexual experience; she was pregnant and abortion was performed by a physician. She stated that she met the man who seduced her one year prior thereto in her country town. Asked why she became a prostitute, she said, "I went to this life shortly after I had an abortion. I could not get a decent pesition to make a living. No one introduced me into this life. I learned it myself of easy living. There is no one to blame but myself." She declared that she had no love for prostitution, but "this is a business proposition." She had no sexual feeling for the men she consorted with. "I realize," she said, "that this is the only way to do it by not working hard. I am not fond of the life, but I like to live nice. I like to dress nice. I don't want to work hard. I like to go to swell places. I could not make $50 a day on anything else."

Case III.—B. was a woman twenty years old. She left school in the eighth grade and became a telephone operator, earning $8 a week. Two years ago she came to New York from Pittsburgh. Asked why she left home, she said. "Well, because I wanted to see what New York was like." Later she said that she had a married sister in New York, but when she came here she did not visit her sister for several weeks. In the train from Pittsburgh to New York she met a man and "he said this or that about nice clothes and I thought I would try it. I thought I might as well take a chance as all young girls do." She was then seduced by this man, with whom she lived in New York for several days. She received from him $25. She admitted that she did not like him and that she had no sexual feeling for him. Since than she has led the life of a courtesan.

Case IV.—P. was the sister of B. She was twenty-one years of age and had graduated from public school. Her ambition was to be a nurse. For ten years she kept house for her father. At sixteen she was seduced by a man. She was his mistress for three months. "After I had intercourse with him I did not care for him. I did it; yes, a lot of things we do that we do not like." Following this she began to lead the life of a prostitute. In discussing her immoral life she did not seem to show much effect and maintained that by following such an occupation she did not have to work very hard.

Case V.—W. was a girl nineteen years old. She left school at the grade of 6B. She described herself as always mischievous, playful, unstable. In school, she was poor in conduct, good in studies, and frequently played truant. At fifteen she eloped with a young man and two days later she was apprehended by her mother. She was then arrested and sent to a correctional institution because of immorality. While there she came in contact with immoral women who told her "how to make money easy." When she was discharged from that institution she tried to obtain several positions, but was unsuccessful, and finally she decided to take up prostitution as an occupation.

In the present state of our knowledge, we are justified in regarding prostitution as a definite biological reaction. Indeed, it is a type of mental inferiority in which the affective and volitional phases of mental life are disordered. To be sure, the relation of prostitution to true feeblemindedness is much overrated; this may be explained by the fact that such investigations were not conducted along purely psychiatric lines. As a matter of fact, the percentage of the feebleminded prostitutes is too low for an adequate solution of this problem. There is no question that the true prostitute presents a definite type of personality, and furthermore, her sexuality is decidedly of an infantile type. This explains why perversions are so frequent among these women: Indeed, on the whole, she does not lead a normal coordinated sensual life, as she does not select her sexual object and the sexual act is performed for a nonsexual end. The undue aggressive tendency, so frequently manifest in the prostitute, is a homosexual trait. This characteristic especially appeals strongly to the neurotic male who is otherwise unattracted by normal women.

In general prostitution may be divided into three large classes, 1, symptomatic; 2, environmental; and 3, constitutional. The first is a symptom of a mental disease, neurosis or feeblemindedness, a class of cases which sooner or later becomes recognized and isolated. The second represents only a small group of cases who enter prostitution because of some economic or social reason. This is the most hopeful class for readjustment and reclamation. The third is the malignant type, inasmuch as the constitutional factors are in the foreground. However, there is a possibility that in the early plastic stage, under proper social adaptation and intensive reeducational methods, something might be accomplished in saving these women from entering the field of prostitution.

With this general consideration of the subject of prostitution, we may now ask what can be done to solve this problem? Granting that prostitution is a moral scourge, the source of venereal diseases, and the disturber of home life, yet it is an evil which will probably exist so long as monogamous marriages will be in practice. Aschaffenburg (25) thoughtfully remarks: "The harshest measures, flogging, the pillory, and capital punishment, proved of no avail in repressing the evil which continued to spread and thrive only in a more secret and dangerous form, and they were always given up after a time. Thus in all countries, legislation has oscillated between extremes, turning from the method of herding prostituties together in barracks to allowing them unlimited freedom, from occasional superintendence to the strict supervision of each individual. The tendency to respect the right of the individual and to place them above those of society on the one hand, and on the other the moral fear of sanctioning the evil by legally allowing it, have always led to the repeal of regulative measures. This has been followed by such a spread of prostitution in its most dangerous, clandestine form that it later became necessary to recognize and regulate it again."

It is obvious that the rational approach of this problem should embrace the following important points: 1. Proper sexual enlightenment should be given to young men and women in schools and colleges. The men especially should be fully acquainted with the nature and character of venereal diseases, and particularly of the effects of syphilis. Efforts should not be spared to emphasize the fact that the prostitute is directly or indirectly responsible for every case of syphilitic infection. 2. Every attempt should be made to recognize the abnormal personality of the prostitute in the formative period and adjust her to such an environment as would meed the needs of her mentality. 3. The necessity of creating hospitals for prostitutes with chronic venereal diseases is selfevident—indeed, their detention there should be determined by the duration of the virility of the venereal affection. 4. The question of actual segregation of prostitutes under strict police control and medical supervision should receive careful and thoughtful consideration, for after all, which is the greater evil: the segregation of this vice, or allowing it to disseminate and exert its pernicious influence upon society?

I am under great obligations to Mrs. M. E. Paddon, ex-executive secretary of the Magdalen Home, for the premission to examine the inmates of that home, and likewise my thanks are due to Miss E.C. Cook for the statistical data.—The *New York Medical Journal,* July 21, 1917.

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EDITOR'S NOTES.

Flies and Coloured Light.

There are more ways of killing a dog than choking him with butter, says the adage, and the remark applies also to flies. One of the neatest, cleanest, and most scientific modes of getting rid of flies is founded on the observation that their visual apparatus is apparently only sensitive to white light, most of the 'primary colours producing on them the same effect as darkness. According to M.M. Galaine and Houlbert, the fly's retina is not impressed at all by violet and indigo, a little disagreeably, by blue and green; yellow and orange are better borne, and reds are not perceived at all. Now for the application of these data to the problem of fly riddance. In a room with only one window the ordinary panes are replaced by light-blue glass, one being made to open when required in order to admit white light. These observers found that flies were attracted into the room through the open window, became restless as soon as the window was closed and only blue light prevailed, and then became lethargic, as in the dark. If at this juncture the movable pane were thrown open, admitting white light, they promptly availed themselves of the opportunity to escape. This experiment, repeated with green glass, yielded approximately the same results, but those with yellow were less conclusive. When there are two or more windows, those on one side of the room should be opened while the others are closed. Flies wandering into the room turn tail as soon as they perceive the blue light. A further advantage of the blue panes is that they arrest most of the heat rays. It is true that the employment of blue glass diminishes the illuminating powers of the light rays, but this can in a certain degree be overcome by employing a mosaic of blue, green, yellow, and even red glass. It is to be noted that flies are comparatively unobtrusive in churches provided with plenty of coloured stained-glass windows.—The *British Medical Journal*, August 11, 1917.

Treatment of Neuritis.

Harrington Taintsbury gives the following treatment originated by Dr. Hugh Wingfield as one which is extremely simple and most satisfactory in the majority of cases, especially those of sciatica. The treatment consists in first carefully mapping out the tender spots along the nerve involved, as well as its entire course. Then a pledget of cotton is firmly compressed into a ball about the size of the knuckle of the middle finger and saturated with half to one dram of pure concentrated hydrochloric acid. After the application of vaseline the ball is grasped in the fingers, and a strip about one and one half inches wide is pointed with the acid along the entire course of the nerve. The immediate response is usually no more than a slight smarting, though at times it is more marked; this passes off in a few minutes. The treatment may be repeated twice a week if necessary; the acid does not burn or corrode the skin. In a few cases it may be followed by a papular rash and the application should then not be repeated until this has disappeared. The treatment should be continued so long as the local pain and tenderness persist, but it will usually cure even the very obstinate cases in a comparatively few applications. The *modus operandi* of the treatment is not understood.—The *New York Medical, Jaurnal*, August 25, 1917.

The Alcoholic factor in insanity.

Dr. H. M. Pollock statistician to the New York State Hospital Commission, has published a paper on the decline of alcoholism as a cause of insanity, based upon an inquiry into the history of the 58,000 patients admitted during the past eight years into the thirteen civil State hospitals of New York State. During this period the habits of every patient were inquired into on admission, and a statistical data card was prepared for each case and forwarded to the Bureau of Statistics. Dr. Pollock summarizes the results of this investigation in tabular form. The first table shows the number and proportion of cases of alcoholic insanity among patients admited during each year. In 1909 the percentage of alcoholic cases among all admissions was 10.1; in 1910 9.8; in 1911 9.7; in 1912 9.4; in 1913 9.0; in 1914 7.0: and in 1915 5.4; in 1916 the percentage rose to 5.7. Since the trend of these figures might be interpreted as being due to changes in classification rather than to changes in the use or influence of alcohol, a further table is given showing the number and percentage of cases for each year in which the intemperate use of alcohol was recorded on first admission. This also shows a general decline, as does a third table giving the yearly rates of new cases of alcoholic insanity admitted to the civil State hospitals per 100,000 of general population of the State. The conclusion drawn from these figures is that the alcoholic cases annually admitted to the State hospitals in question since 1909 have decreased both relatively and absolutely, and that intemperance as a contributing factor in causing mental disease has gradually diminished. These results are attributed by Dr. Pollock to improvement in the habits of the general population with respect to the use of alcohol. But in appraising them we may well bear in mind the word of caution sounded by Dr. Maurice Craig in his discussion of alcoholism as a cause of insanity. "No doubt it is a very potent cause, but it may also be an early symptom of mental disease. The physician must be careful to distinguish between cause and effect. Further, defective control may be the scar left by a former attack of insanity, and it may show itself in a tendency to drink." - The *British Medical Journal*, September 22, 1917.

Infectious Jaundice.

In America there have been a few epidemic or endemic cases of infectious jaundice; and though it has not been proved that they were due to the *Spirochaeta icterohaemorrhagiae* it appears probable that this is so from Noguchi's recent observation that wild rats captured in America contain this organism in their kidneys, just as it has been shown that rats captured on the Western front in France, both in districts where the disease occurs in man and also at a distance from human cases, act as a "reservoir" for the spirochaete. Emulsions made from the kidneys of American wild rats were injected into guinea-pigs, and caused a typical ictero-haemorrhagic spirochaetosis exactly like that seen in guinea-pigs injected with the Japanese and Belgian strains of *Spirochaeta icterohaemorrhagiae.* The attack of this spirochaete on the human body is probably a comparatively recent event, and it is suggested that the disease was originally epizootic among certain rodents, especially wild rats, and that after a long sojourn in these hosts its virulence for them has become so reduced that a state of tolerance for the spirochaete results. By means of a special technique Noguchi has for the first time cultivated artificially the Belgian and the American strains of the spirochaete, and by immunization experiments he finds that the Japanese, Belgian, and American strains are probably identical. Morphologically they are also identical, and present differences from other spirochaetes, so that a new genus should be recognized, for which the name *Leptospira*, on account of its fine and minute windings, is suggested. In commenting on the contrast between the mortality of 38 per cent. among the Japanese and of 3 per cent. among European soldiers, Noguchi points out that it is reasonable to assume that the Japanese strain has already acquired a marked increase in virulence for human beings, probably as the result of more frequent passage from man to man. Successive passage of the American strain through guinea-pigs increased its virulence. The results of further investigations will be published later. The discovery of this causal organism in American rats reveals a danger which remains latent as long as sanitary conditions are satisfactory.—The *British Medical Journal*, July 7, 1917.

Tetanus Lighted up by Operation.

We have received notes of a case which illustrates the danger of disturbing old wounds. A man was wounded in France in September, 1916, by shell fire, a compound fracture of the right radius being produced. He probably received a prophylactic injection of antitetanic serum at the time when he was wounded, but there is no documentary evidence of this. In April, 1917, more than two hundred days after injury, the wound was firmly healed but the radius still remained ununited. An operation for bone grafting was now undertaken, but a prophylactic injection antitoxin was not given. Six days later tetanus set in, and in spite of vigorous treatment the man died after an illness of only three days. Apparenly anaerobes lurked in the depths of the tissue, for shortly after the operation the wound became very septic. The case is an example of the peculiar danger which attaches to compound fractures, and also the importance of giving a prophylactic injection of antitoxin before disturbing an old wound. The surgical treatment of wounds has an important bearing on the incidence of tetanus, and some medical officers of military hospitals at home are dissatisfied with the condition in which wounds treated by the salt and allied methods reach them. It contrasts unfavourably, it is said, with the clean, sweet-smelling condition of those treated by the old Listerian method of antiseptic dressings such as the double cyanide of mercury and zinc gauze, or iodoform.—The *British Medical Journal*, June 30, 1917.

A New Physician Poet.

America has not so far produced a great number of doctor poets, but in point of quality she has no reason to fear comparison with the Old World. The names of Oliver Wendell Holmes and Weir Mitchell are a host in themselves. To these must now be added another of equal brilliancy. Quite recently a new medico-poetic planet has swum into the ken of lovers of literature in the person of Dr. Frederick Peterson, of New York, whose name is well known to the profession by his work in neurology and morbid psychology and his pioneer efforts to promote the treatment of cases of incipient insanity in psychopathic hospitals. He contributed an aricle on the hospital treatment of insanity to the tenth edition of *Encyclopaedia Britannica.* He was for many years professor of psychiatry in Columbia University, and he is the author of a work on nervous and mental disease, written in conjunction with Dr. Church, of the *American Textbook of Legal Medicine*, produced in collaboration with Professor Haines, and of many contributions on subjects within his special province to medical periodicals, notably to the *New York Medical Journal*, of which he was assistant editor for several years. It is in the issue of that journal for March 31st that the announcement of Dr. Peterson's appearance in his new avatar as a poet is made. He had, it is true, published a volume of verse and translations from the Swedish as far back as 1883. But he has now spread his wings in a greater flight. During the past two years, as we learn from our New York contemporary, many lyrics dealing with natural phenomena and land-scapes in their relation to mankind, favourite themes with Chinese artists, have appeared in American. literary magazines under the signature " Pai Tu-Shan." These have been collected in a volume printed in luxurious style by Kelly and Walsh of Shanghai (New York Scribner and Sons), illustrated with collotype reproductions of ancient Chinese paintings, and in Chinese silk. The examples given in the *New York Medical Journal* seem to show that Dr. Peterson has rendered in graceful verse the dainty touch of the Chinese artist.—The *British Medical Journal*, June 2, 1917.

Precautions for Flying Men.

The *Journal of the Royal Naval Medical Service* for July contains an interesting note by Mr. H. Graeme Anderson (temporary surgeon R. N., attached to the Royal Flying Corps Service), based on a lecture delivered to pupils at air stations. Flying, he says, is a question of an active, well-balanced, decisive mind, and a series of sound and quick reflexes, visual, auditory, tactile, muscular, and balancing. The most important is the visual, the normal time for which he puts at twenty hundredths of a second. The time for the auditory and and tactile reflexes he puts at fourteen-hundredths of a second. He points out that the reflexes are down or disturbed if the pilot is physically or temperamentally unfit, or is suffering from any illness, worry, fatigue, or from the after effect of excesses in alcohol. He recommends flying men to avoid alcohol and to be careful about smoking, a habit in which he says most aviators indulge too much. He considers that their diet should be generous and nourshing, and that flying when hungry should be avoided. Goggles should be fitted with non-splintering glass, and the hands covered with loose-gauntleted gloves lined with lamb's wool; the field boot, which should be of soft leather, ought to be lined with the same material. The face, when there is a risk of frostbite, should be smeared with a thin layer of vaseline, which prevents loss of heat from the skin. A curious point noted is that as most aviators fly with the mouth slightly open they should see that teeth and gums are in a healthy state, for any local disease may be increased by the cold and rush of air. He describes two forms of air sickness, one akin to sea sickness, due to the rolling and pitching of the aeroplane in "bumpy" weather. It is very rare, although a pilot by doing steep spirals and "switchbacks" may produce it in a passenger. The other form of sickness occurs at heights of 10,000 ft. and over, and is caused by the rarefied atmosphere and lack of oxygen. After passing 10,000 ft. the cold is extreme, and slight buzzing in the ears difficulty in hearing, headache, fatigue, and torpor occur. The headache continues for some time after landing, and sleepiness is very marked. On a rapid descent the deafness and buzzing in the ears become more acute, and severe earache may come on. To guard this "altitude sickness" oxygen should be carried and inhaled slowly as a preventive when going to great heights, especially for any length of time.—The *British Medical Journal,* June 28, 1917.

Malaria in France.

The risk of the establishment of epidemic malaria in France, to which attention has been called on several occasions during the last couple of years, has again been considered by the Academie. Professor Blanchard—than whom there is no more competent authority on the subject—acting on the instructions of the Under Secretary of State for Health in the Ministry of War, visited the Mediterranean coast of France last July, and roported the presence of malaria bearing mosquitos. He also proved the presence of the bearer of yellow fever (*Stegomyia calopus*) in abundance on the French Mediterranean littoral, and even in the town of Notice. Professor Blanchard pointed out that at one time many areas in France suffered severely from malaria; that although the disease has now become rare, it has not wholly disappeared; and that there is a small focus of the disease in the valley of the Somme, and probably others elsewhere. Two species of anopheles exist in France—*A. maculipennis* and *A. bifurcatus*, both of them bearers of malaria. The fear is that the return of men invalided from Macedonia suffering from malaria, the introduction of Senegalese troops, and the importation of labour battalions from Annam and other eastern countries, may so multiply the opportunities for the anopheles to become infected that the disease will once more become established in many parts of France which have long been completely, or almost completely, free from it. Professor Blanchard said that the French troops in Macedonia, had suffered much more severely than the British, the British having wisely looked upon the campaign in Macedonia as "a medical war," an expression which he quoted in the original, and described as not only picturesque but accurate. He expressed the hope that the autonomy recenly granted to the French Army Medical Service may in future prevent the repetition of errors for which that service was very far from being wholly responsible. In August, 1916, and February, 1917. the Under Secretary of State issued directions to public health officials in France with reference to the precautions which should be taken in establishing hospitals or convalescent camps for men returned from malarial districts. He also consulted Professor Leger and Professor Laveran. Both Professor Blanchard and Professor Leger advised that the whole of France should be divided into areas, with a physician or zoological expert at the head of each, to study the question of mosquitos and malaria. This recommendation was made at the end of February, and a month later the Under Secretary of State appointed a commission, under the chairmanship of M. Laveran, to draw up a plan of campaign. No immedite action was taken, but it was hoped that the directors of each section would shortly be nominated. Meanwhile, however, the mosquito season is getting into full swing. The establishment by so high an authority as Professor Blanchard of the existence of *Stegomyia calopus* in abundance in certain parts of France is distinctly disquieting, and it appears that recently there was a small outbreak of yellow fever in the neighbourhood of Saint Nazaire. It was started by certain cases occurring in a body of Senegalese troops which had not been subjected to a sufficiently minute medical examination before leaving Africa. It is assumed that the local stegomyia acquired the infection from them. At a later meeting of the Academy M. Netter sought to minimize the danger of either disease becoming established in France, mainly on the ground that malaria had died out, or almost died out, in France during the last half of the nineteenth century but M. Blanchard adhered to the opinion that strict precautions should at once be put in force to prevent the recurrence of the disease, and that it was only subject to that condition that the risk could be considered small.—The *British Medical Journal*, June 23, 1917.

Gleanings from Contemporary Literature.

REFINED WHEAT FLOUR AND ITS VALUE AS A FOOD.*

By J. Wilkinson Clapp, M.D., Brookline.

We hear much at the present time, both from members of the medical profession and in the public press, on the undesirability of white wheat bread as a food. Claims are frequently made that the essential elements of food contained in the wheat have been removed by the more modern processes of milling and that but little is left except the starch.

Some even go so far as to contend that the purifying process has been carried to that extent as to render it an actual poison, and as such, a great menace to the public health.

As these claims are circulated and find credence in the minds of the public, it would seem to be our duty to ascertain the true facts and not only to prepare ourselves to answer the many inquiries, but to give advice.

In the preparation of this paper I have quoted largely from the writings of Professor Snyder, Professor of Chemistry in the University of Minnesota, who is likewise Chemist of the Agricultural Experiment Station. Professor Snyder is an expert in all that pertains to the milling industry, as well as being an eminent chemist, and a leading authority on the chemistry of cereals and of food products.

I have also drawn largely from the bulletins of the United States Department of Agriculture in their reports on the nutritive value of food products, and from numerous other sources.

In order more fully to comprehend our subject, it will be well for us to give a few moments' attention to a brief review showing the immense production and consumption of wheat in this country alone, and to note the evolution of the milling industry and processes of milling.

The annual production of wheat in the United States is from 600 000 000 to 1 000 000 000 bushels, from 50 to 70 per cent. of this quantity being raised in the winter wheat states, and the balance being spring wheat.

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* Read before the Hughes Club, May 18, 1917.

This wheat yield fluctuates from 12.3 to 16.6 bushels per acre, the average for the past seventeen years being about 14.2 bushels. According to government statistics the average consumption of wheat in the United States is given as 5.4 bushels per capita, which equals 240 pounds of flour. This shows that the consumption of flour in this country is equal to one and one-fifth barrels per year for each man, woman and child. This seems almost incredible when we further learn that the United States is not one of the largest bread-eating nations.

The United States Census shows that the number of flour mills either in active operation or capable of being operated approximates 7 500, and these have a total daily capacity of about 1 000 000 barrels. This industry is widely distributed, no one state having over 15 per cent. of the total flour-making capacity.

The products of wheat are perhaps best briefly given by quoting here from the descriptions of samples used in the government tests and recorded in Bulletin No. 101, United States Department of Agriculture, under numbers 41 to 52, as follows: —

"No. 41. First patent flour; produced by the roller process of milling. This is the highest grade of patent flour manufactured. The gluten from this flour has a greater power of expansion than that from any other grade, and the flour also absorbs the most water and produces the whitest and largest sized loaf of bread.

"No. 42. Second patent flour, sometimes called standard Minneapolis patent flour. It is similar to first patent flour but the bread produced is a shade darker in color, and the gluten does not possess quite so high a power of expansion.

"No. 43. Standard patent flour, is made up of the sum of the first and second patent grades and the first clear or bakers' grade of flour, and is the ordinary bread flour most frequently found on the market. It was used in the investigations as the standard for comparison with the entire-wheat and graham flours. About 72.6 per cent. of the screened wheat is recovered as standard patent flour.

"No. 44. First clear grade flour After the first and second grades of patent flour are removed, about 11.8 to 12 per cent. of the first clear grade flour is obtained, which contains slightly more protein, than either the first or second patent flour. The protein, however, does not contain gliadin and glutenin in the right proportions to produce so good a quality of bread as the patent grade flours.

"No. 45. Second clear or low grade flour. After the standard patent flour has been removed there is obtained about 9.5 per cent. of flour called second clear or low grade, which contains a high percentage of protein. The gluten, however, is of poor quality for bread-making purposes.

"No. 46. 'Red dog' flour. This is the lowest grade of flour produced. It is dark in color and has but little power of expansion. It is secured largely from the germ or embryo and adjacent portions of the wheat, and contains a relatively high percentage of protein. 'Red dog' flour produces a small and dark-colored loaf of bread as compared with flour of better quality.

"No. 47. Middlings or shorts. About 11.6 per cent. of the cleaned wheat is recovered in middlings, which consists of the fine bran that has been more completely pulverized. When this product contains a large part of the germ it is much richer in protein than ordinary shorts and is called shorts middlings. The term middlings, as used in this sense, should not be confused with the same term applied to the material obtained when wheat is milled by the old process. Tiddlings of the old process are now reduced and recovered in the various grades of patent flours.

"No. 48. Bran. This is the episperm or outer covering of the wheat kernel.

"No. 49. Entire-wheat flour. This is the product obtained by removing a portion of the bran (the large part of the coarse bran is removed) and then grinding the remainder of the wheat kernel. The flour is of a coarser texture than the patent and clear grades. Entire-wheat flour is sometimes called 'purified graham' or 'natural' flour.

"No. 50. Graham flour. This is the entire-wheat kernel (bran and all) ground into meal. The presence of the bran prevents the fine grinding of the material, and particles of the bran are apparent when the flour is examined. Graham flour is practically wheat meal. No sieves or bolting cloths are employed in its manufacture, and many coarse particles of unpulverized material are present in the product.

No. 52. Gluten flour. This is a flour containing as high a percentage of protein as it is possible to secure by the ordinary roller-process milling. It is not composed entirely of gluten, but simply contains a high percentage of this material. No flour can be composed entirely of gluten.

By mixing various amounts of the different standard grades of the flour described above, large numbers of flour with different trade names are obtained. "Many of the brands of flour sold in the market are produced by blending different amounts of the patent and clear grades of flour." The term flour is, however, generally understood to apply directly to the fine bolted product of wheat.

There has been a gradual evolution in the processes of flour milling, the effort being to obtain a cleaner as well as a more wholesome grade flour, both for bread-making and for other food purposes. This has necessitated a finer grinding of the wheat and a more complete removal of the fiber and the wheat offals from the flour. It must be recognized that in the gathering of wheat a large amount of dirt or earthy matters, entirely distinct from the wheat, must find its way into the bins and mills.

The principle of crushing or of grinding of grains was discovered over 5,000 years ago and it has been used and is still used by both savage and civilized today.

Recognizing the necessity of grinding, or more correctly of the milling, of wheat, it is but natural that every effort should be made to perfect the processes with a view of securing the largest amount of nutritive materials, and this in a form to make it most available and of greatest value as a food.

The development of the mechanism of milling has been gradual. What might be called the ancestor of the millstone was a rounded stone which could be held in the hand, and with which grains or nuts were crushed or pounded into a coarse meal. These crushing stones must have been found of different shapes, varying from a rounded from to that of an elongated or pestle-shape muller. The latter type is not infrequently found in prehistoric remains.

The saddle-stone may be called the connecting link between the original hand-pounder of muller and the quern which was the direct ancestor of the millstone and which is said to be still used in the production of flour.

The saddle-stone was a stone with a more or less concave face, on which the grain was spread, and in and along this hollow surface it was crushed and ground into a coarse meal. This form of stone has been found in the sand caves of Italy, in the dolmens of France, in the pit dwellings of Britain and also in the lake dwellings of Switzerland and in other places all over the world.

It is still in use in parts of Mexico and in South America, where it is known as *metate*, and is employed in making their maize cake called *tortilla*.

According to Richard Bennett the quern was the first complete milling machine and was first used in Italy, and probably originated about the second century B.C. Querns are still said to be used in parts of Scotland and Ireland, and are known to be used in primitive countries. The quern is looked upon as having revolutionized the method of flour grinding by introducing the rotary motion of the millstone, a principle which exists today even in the rolls of the roller mill.

The Romans were the first to make use of water power in milling, and steam power is said to have been first used by the English for this purpose towards the end of the eighteenth century.

Sieves were used to remove the coarse materials and much of the bran hundred years before the process of roller grinding was brought into use; in fact, there is evidence to show, that sifting out the bran and coarser particles has been employed for over two thousand years.

The roller mill for the grinding of wheat was first introduced by a Swiss engineer named Sulzberger in the third decade of the nineteenth cenutry, and later was improved by Hungarian millers, and it is said to have been first used in Great Britain in 1872. Machines fitted with rolls for the grinding of corn are said to have been used as early as the seventeenth century.

More than ninety per cent. and possibly ninety-nine per cent. of the flour consumed in this country and Great Britain is now made in roller mills, the wheat being broken and floured by means of rollers, and these mills are all what is termed automatic, that is, the wheat from the time it is brought into the mill till it is completely sacked, ready for shipment, is not touched by human hands.

Professor Snyder calls attention to the fact that there is a "popular misconception regarding the mechanics of milling. Some have the idea that the old millstone flour contained all the bran, or a large portion of it, and that there was either no separation or only a limited elimination of the fibrous parts of the wheat kernel in the milling. Such an idea is a mistake."

He clearly shows that when the roller process was introduced, it brought in "no new system of separation; that is, the bolting or sifting of products, not in vogue in the old millstone system, was and is a feature of both the old and the new processes of manufacture. The rolls simply change the method of reduction of the stock, steel rolls being substituted for the millstones."

Other improvements have been developed which more thoroughly clean the wheat, remove the dirt from the surface and prevent its getting into the flour, consequently yielding a cleaner and purer product, and the yield is increased, as the flour formerly left in the bran is now removed by improved methods of milling. The rich hard glutinous middlings found in the harder wheats which are rich in food value are now reduced so as to form an essential part of the best grade flour.

The old process of flour-making left a small portion of bran, together with varying amounts of dirt and flour dust, which are now removed by the modern methods of milling; and much has been said and written as to the value of the products claimed to be removed by the modern methods. The authors of a work entitled "Bread as a Food," and others have claimed that "these debris particles carry special substances known as vitamines," and that "these substances (the vitamines) are located in the intact kernel in the outer layer (aleurone layer) and probably also in the germ." Their claim is that these were retained in the old process of milling, but that they are eliminated in the new. Professor Snyder shows conclusively "that the fiber specks left in the old-process flour did not carry enough of the total bran to affect the vitamine content of the flour, when you consider that now with the more exhaustive process of milling, more of the flour from and near the aleurone layers is recovered than in the case of grist-mill flour." Further, he shows that it is distinctly to the advantage of the miller to recover from the wheat all the valuable and nourishing parts, as the flour yields in normal times from 2½ to 3 cents per pound, while the bran sells for about 1½ cents.

It should be understood that white wheat flour can be made by either the roller process or by the old process of grinding between stones, and that the old-process flour cannot indiscriminately be called whole wheat or graham flour; in fact, either the whole wheat or the ordinary white flour can alike be made by either the grinding or the roller process.

In order to show the condition of the wheat when received for milling, and the parts removed in the perfection of flour, I quote from Zimmer, in his article on the processes of milling in the Encyclopædia Britannica:

"Fully to appreciate the various processes of modern milling, it must be remembered not only that the wheat as delivered at the mill is dusty and mixed with sand and even more objectionable refuse, but also contains many light grains and seed of other plants.

"The miller must therefore command the means of freeing it from foreign substances.

"The wheat berry is a fruit, not a seed, the actual seed being the the germ or embryo, a kidney-shaped body which is found at the base of the berry and is connected with the plumule or root. The germ is tough in texture and is in roller milling easily separated from the rest of the berry, being flattened instead of crushed by the rolls, and thus readily sifted from the stock. The germ contains a good deal of fatty matter which, if allowed to remain, would not increase the keeping qualities of the flour.

"Botanists distinguish five skins on the berry—epidermis, epicarp, endocarp, episperm and embryonic membrane—but for practical purposes the number of integuments may be taken as three.

"The inner skin is often as thick as the outer and second skins together, which are largely composed of woody fibre; it contains the cerealin, or aleurone cells, but although these are made up of certain proportions of proteids on account of the discoloring and diastasic action of the cerealin in flour, they are best eliminated. The endosperm, or floury kernel coming next to the inner skin, consist of starah granules which are caught, as it were, in the minute meshes of a net. This network is the gluten, and this glutinous portion is of great importance to the baker because on its quantity and quality depends the strength or rising power of the flour, and the aim of modern roller milling is to retain it as completely as possible, a matter of some difficulty, owing to its close adherence to the husk, especially in the richest wheats.

"Another organ of the wheat berry which has an important bearing on the work of the miller is the placenta, which is in effect a cord connecting the berry with its stalk or straw. The placenta serves to filter the food which the plant sucks up from the ground; it passes up the crease of the berry, and is enfolded in the middle skin, being protected on the outer side by the first, and having the third or inner skin on its other side. A good deal of the matters filtered by the placenta are mineral in their nature, and such portions as are not digested remain in the crease. This is the matter which millers call 'crease dirt.' It is highly discoloring to the flour, and must be carefully eliminated. The fuzzy end of the berry, known as the beard, also has a distinct function; its hairs are in reality tubes which serve to carry off superfluous moisture. They have no nutritive value.

"The yield of flour obtained averages 70 to 73 per cent. of the wheat berry. The residue, with the exception of a very small proportion of waste, is offal, which is divided into various grades and sold. In millstone milling, the yield of flour probable averaged 75 to 80 per cent., but a certain proportion of this was little more than offal."

The relative merits of white and whole wheat or graham bread has been discussed for over a hundred years, and it has been a subject of investigation by many scientific bodies and men. Sir. J. B. Lawes and Sir Henry Gilbert, well known as two eminent scientists, jointly investigated the question, and some of their conclusions here given are of interest:

"The higher percentage of nitrogen in bran than in fine flour has frequently led to the recommendation of the coarser breads as more nutritious than the finer. We have already seen that the more branny portions of the grain also contain a much larger percentage of mineral matter. And, further, it is in the bran that the largest proportion of fatty matter—the non-nitrogenous substance of higher respiratory capacity which the wheat contains—is found. It is, however, we think, very questionable whether upon such data alone a valid opinion can be formed of the comparative values of bread made from the finer or coarser flours ground from one and the same grain.

"Again, it is an indisputable fact that branny particles, when addmitted into the flour to the degree of imperfect division in which our ordinary milling processes leave them, very considerably increase the peristaltic action, and hence the alimentary canal is cleared much more rapidly of its contents.

"It is also well known that the poorer classes almost invariably prefer the whiter bread, and among some of those who work the hardest, and who consequently soonest appreciate a difference in nutritive quality (navies, for example), it is distinctly stated that their preference for the whiter bread is founded on the fact that the browner passes through them too rapidly, consequently, before their systems have extracted from it as much nutritive matter as it ought to yield them.

"In fact, all experience tends to show that the state as well as the chemical composition of our food must be considered; in other words, that the digestibility and aptitude for assimilation are not less important qualities than its ultimate composition.

"But to suppose that whole wheat meal as ordinarily prepared is, as has generally been assumed, weight for weight more nutritious than ordinary bread flour, is an utter fallacy founded on theoretical textbook dicta; not only entirely unsupported by experience, but inconsistent with it. In fact, it is just the poorer fed and the harder working that should have the ordinary flour bread rather than the whole meal bread as hitherto prepared, and it is the overfed and the sedentary that should have such whole meal bread.

"Lastly, if the whole grain were finely ground, it is by no means certain that the percentage of really nutritive nitrogenous matters would be higher than in ordinary bread flour, and it is quite a question whether the excess of earthy phosphates would not then be injurious."

The United States Department of Agriculture some twenty years ago instituted a series of tests which extended over a period of nearly ten years, with the object of determining the relative digestibility and nutritive value of white wheat bread and of what is known as whole wheat bread and of graham bread. These tests were all made from the same wheats, but they included various types and kinds of wheats.

The tests were conducted under the immediate supervision of Professor W. O. Atwater, Chief of Nutrition Investigations, and Professor Charles D. Woods, and the results of these investigations have been published in several bulletins issued by the United States Department of Agriculture.

These studies were in fact a continuation of investigations on the nutritive value of cereal products conducted at the University of Minnesota by Professor Harry Snyder, and at the Maine Agricultural Experiment Station by Professor Charles D. Woods. The published reports of the investigations cover over three hundred printed pages.

These tests were made upon thoroughly scientific lines, and every provision was made for accuracy. The bread and milk consumed was in every case weighed and carefully analyzed, and also all of the waste products (urine and fæces), and from the total quantity of food consumed and the amount excreted in the indigestible waste, the actual amount digested and utilized by the body was determined.

Time will not admit of giving but a brief statement of these tests, but the following extracts from Bulletin No. 156 will be of interest:

"The general plan of these investigations has been to prepare the three common types of flour—graham, entire wheat and standard patent—from the same lot of wheat, and then determine their comparative digestibility and nutritive value by experiments with bread made from the flours. As stated in a former reports, graham flour is unbolted ground wheat; entire wheat flour contains all the wheat kernel with the exception of a portion of the bran which is removed with a coarse screen, while the standard patent, or straight grade flour, contains neither the bran nor the germ, but is fine white flour which has passed through a No. 14 bolting cloth."

In order to compare accurately the nutritive values, it was necessary to have their samples prepared from the same lot of wheat, because of the wide variations in composition of different kinds of wheat.

"The earlier experiments were made with wheats from widely different localities, including Minnesota northern-grown hard spring wheat, Michigan soft winter wheat, Indiana soft winter wheat, Oklahoma hard winter wheat, and Oregon soft winter wheat."

"The tests made and described in bulletin No. 156 were made with Oklahoma hard winter wheat and Oregon soft winter wheat, obtained from the Oklahoma and Oregon experiment stations, respectively."

Complete analyses of all the wheat and flour samples were made, and also of the milk.

In the digestion experiments, "the diet consisted of milk and of bread made from the different grades of flour. In the first series, the first three experiments were carried on simultaneously, the three subjects being fed on bread from the entire wheat flour milled from the Oregon wheat, and in addition sufficient milk to make the diet palatable. Three more experiments followed, in which bread from the straight grade flour was substituted for the entire wheat bread; and, finally, in three more experiments, graham bread was used. In the second series the experiments were repeated in a similar way with bread made from the Oklahoma wheat."

"Besides these, two additional experiments were made with each subject in order to determine the influence of the bran and germ upon the completeness of digestion. In the first of these the diet consisted of bread from bran flour, eaten with some milk. In the second, bread from germ flour was substituted for the bran flour bread."

"The total number of separate experiments was therefore twenty-four. The peroid of duration on each of the experiment with the ordinary flours was four days, or twelve meals; in the experiments with the bran and germ flour one reads it was three days, or nine meals."

"The subjects designated in these experiments were young men in good health; one, a laborer doing field work, and two, students devoting part of their time each day to miscellaneous muscular work."

"This simple diet of bread and milk was eaten, each material being consumed *ad libitum*, but the amount taken at each meal weighed and recorded. The digestibility of the nutrients of the total diet was determined from the quantity of each in the food and fæces. The digestibility of the nutrients in the bread alone was computed by assuming coefficients of digestibility for the nutrients of the milk."

"The fæces for the experimental peroid were collected and analyzed by the usual methods. The separations of the fæces at the beginning and end of each period were effected by means of charcoal in gelatin capsules as a marker."

"The urine of each subject was collected during each experimental period, beginning with 7 A.M. of the first day of the experiment and ending at 7 A.M. of the first day immediately following the experiment. The total amount and specific gravity of the urine and the percentage of nitrogen in it were determined for each day."

A general summary of the results and the conclusions drawn from these tests are given on pages 53 and 54 of bulletin No. 156, and they certainly should prove of interest to us at this time. They harmonize with the results of previous experiments along these lines made by the Department of Agriculture, and extending over a period of ten years.

GENERAL SUMMARY OF RESULTS AND CONCLUSIONS OF EXPERIMENTS WITH BREAD.

"In eighteen digestion experiments with men it was found that white (straight grade) flour was more completely digested than either graham or entire wheat flour, and yielded a larger amount of digestible nutrients and available energy. While graham and entire wheat flours contain more total protein and fat and have a higher heat of combustion, they actually yield to the body, because of their lower digestibility, smaller percentages of digestible nutrients and available energy than the straight grade flour.

"The same general differences in digestibility of the three grades of flour have been noted in experiments with hard north western spring wheats grown in Minnesota and Dakota, hard winter wheat grown in Oklahoma, and soft winter wheats grown in Michigan, Indiana, and Oregon. In fifty-four digestion trials with both hard spring wheats and soft winter wheats in which six separate samples of wheat have been milled so as to produce the three types of flour—graham, entire wheat, and straight grade—uniform results have been secured, and in all of the comparative trials the largest amounts of available nutrients and energy have been secured from the white flour.

"In the three digestion trials in which finely pulverized bran was added to white flour in the same proportion as is removed in milling, it was found that the addition of the bran lowered the digestibility of the flour so that a smaller amounts of digestible nutrients and available energy was obtained from the bran flour than from the white flour with which the bran was mixed. The flour containing finely pulverized bran was more digestible than the coarsely granulated graham flour, but less digestible than the white flour. When bran was finely pulverized it failed to digest as completely as the white flour and, therefore, the addition of the bran lowered the food value of the flour.

"In three digestion trials in which finely pulverized wheat germ was added to white flour in the same proportion as is removed in milling, it was found that the addition of the germ did not materially change the digestibility of the flour, and that the amount of total digestible nutrients and available energy in the germ flour and the white flour was about the same. There was no material gain in total digestible nutrients by the addition of the germ to the white flour. The germ flour produced a smaller sized, sweeter, but less porous loaf than the white flour. Because of its fermentable character wheat germ is excluded from white flour.

"As to pecuniary value, a larger amount of available nutrients and energy can be procured at the usual prices for a given sum of money in the form of white, that is, straight grade flour, than of any other flour. White flour contains the largest amount of available nutrients, and is not only the most digestible, but at present average market prices is also the cheapest kind of flour. It should not be inferred, however, that the use of entire wheat and graham flour is to be discouraged. All the flours are very nutritions and economical foods, and experience has shown that they are wholesome as well. The difference in the amounts of total nutrients furnished to the body by the various gredes of flour are comparatively slight, all grades being quite thoroughly digested.

"In the discussing of the nutritive value of the breads made from the three kinds of flour, the quite noticeable effect of the breads upon the subjects is of interest. In the experiments reported, all the subjects expressed a perference for the white bread. The graham bread, when it furnished the bulk of the ration for four days, produced a little discomfort, suggesting a slight irritation of the digestive tract. The ration of white bread and milk was less bulky in character and gave better results as to satiety and particularly as to ease of digestion. It should be borne in mind, however, that the tendency of the coarser flours to increase the peristaltic action of the intestines is often of undoubted value, particularly to persons of sedentary habit, and that their use as a laxative is in many cases extremely beneficial.

"The use of different grades of flour for bread making is a convenient means of increasing the variety of the diet. Because of varying requirements, no general rule can be laid down in the matter, and the extent to which the various grades of flour should be used must be determined largely by the individual himself.

"In this investigation the comparative digestibility of the phosphates and other mineral constituents was not determined, nor were the quantities consumed and the amounts and proportions excreted in the urine and fæces studied. As yet entirely satisfactory methods have not been generally adopted for determining the digestibility of mineral constituents, and consequently there is a lack of definite knowledge concerning body requiremonts and the changes which are involved in the metabolism of the ash constituents of the diet. Considerable work along these lines is now being carried on by a number of investigators in France and elsewhere in Europe, and in the United States studies of the forms in which ash constituents, especially phosphorus, sulphur, and other ash constituents in food and excretory products, and various problems concerning the functions of these elements are being taken up in connection with the nutrition investigations of this Office and by experiment station workers and other investigators. It is believed that this work may be more appropriately summarized when the investigations now in progress have been continued for a longer time."

In the year book of the United States Departments of Agriculture, 1903, will be found a most interesting article on "Wheat, Flour and Bread," by Professor Harry Snyder and Professor Charles D. Woods, in which are given the results of upward of 100 digestion experiments made on healthy men with bread from different grades of flour ground from hard and soft wheat from different States. These experiments were made with the same care and conditions previously referred to, and the results, therefore, give very definite information regarding the relative digestibility of bread from different grades of flour,

The averages of the results obtained with the three grades of flour, *viz.*, graham, entire wheat and standard white, give the following proportions, of nutrients that were digested from the different flours, these factors being commonly termed coefficients of digestibility; standard patent flour protein 88.5 per cent. and carbohydrates 97.7; entire wheat flour, protein 82 per cent. and carbohydrates 93.5; graham flour, protein 74.9 per cent. and carbohydrates 89.2 per cent.

In experiments made to show the digestibility of bread to which 14 per cent. as much bran as flour was added, this being about the proportion removed during milling, as compared with that the bread made from the same flour with the bran, the addition of the bran increased the protein cantent from 15.1 per cent. to 15.3 per cent. but a slight amount, whereas it very decidedly decreased its digestibility, as the following will indicate: bread with bran, protein 85.9 per cent. and carbohydrates 93.3; bread without bran, protein 91.6 per cent. and carbohydrates 97.8.

These experiments were made with the addition of bran which had been very finely ground, much finer than what is found in the graham or entire wheat flour, and the results obtained show conclusively that the defective digestibility of the bran is not due entirely to the coarser grinding, though it should be noted that the bread made from the mixture of ordinary flour and the finely ground bran was found more digestible than that from either the graham or entire wheat flour from the same lot of wheat.

Other experiments were made to ascertain the effect of adding 7 per cent. of the germ to 93 per cent. of standard flour, this being even a larger portion than was removed in process of milling. The digestibility of the bread made from this mixture was for protein 90 per cent. and carbohydrates 97 6; and for bread from standard flour, protein 91.6 per cent. and carbohydrates 97.8. There was therefore no gain in nutritious value by retaining in the flour the germ that is ordinarily removed in the milling.

An extended series of digestion experiments upon breads made from white and graham flours was made by Myer and Voit of Munich, with the results that bread made from fine white flour "yielded the highest percentage digestible nutrients." (U. S. Department of Agriculture, Farmer's Bulletin, No. 112). Graham Lusk of Cornell University, in his work on "The Fundamental Basis of

Nutrition," refers to Carl Voit as the man "to whom more than any one else the world owes its fundamental knowledge of nutrition." As Professor Snyder has stated, the list of scientists that have made investigations relative to the digestibility and nutritive value of breads is a long one, and without exception their findings have been in favor of white bread.

A few words may be added as to the vitamin product in wheat and bread. Vitamins are something new, and there is much yet to be learned about them and their uses and value. It is a word that has been conjured with and that has been much used by the unscrupulous to serve their purposes.

It is sufficient here to say that vitamins are certain nitrogenous compounds, produced during the growth of yeast. They are akin to protein and possess no phosporus, and are to be found in food of high protein compound.

"When bread is made with yeast, and milk is used, it is enriched with the most active and valuable vitamins known." The claim that the new processes of flour making has removed the vitamin product is certainly a fallacy, as Prefessor Snyder has shown "that in modern milling the flour layers supposedly richest in vitamins are now more completely recovered than in the old gist-mill product, where much of these flours went with the feeds."

As to the proteins in flour, the more recent investigations show that not all proteins have the same nutritive value. Some contain typical substances necessary for growth and others are deficient, so that to class a substance as a protein does not signify its absolute food value.

Generally speaking, a flour with 12 per cent. of protein has about 5 per cent. each of gliadin and glutenin, and about 2 per cent. collectively of a number of other proteins, albumins, glabulins and proteoses. The gliadin is the glue-like body perticularly characteristic of wheat and serves as the 'binder' of the gluten. The glutenin has all the essential components for purposes of nutrition, and ranks equally with such proteins as casein, meat proteins, or ovalbumin as a source of protein supply. There are present in flour approximately six per cent. of these proteins of the A, or highest, grade, which is twic as much as is found in milk, and beside these there are six per cent. more of gliadin and similar proteins to serve for general conservation purposes."

In order more fully to realize the importance of bread and other products of wheat as a food for man, and more particularly for the laborer, we have only to take note of these facts: "The annual per capita consumption of flour in this country is 240 lbs., and the average flour mill test would show this to contain an average of 11.50 per cent. of protein. On the basis of standard dietary tables, this flour would furnish from 40 to 45 per cent. of the protein consumed by an average family. In addition, this flour supplies 50 per cent. of the total energy yielded by all the foods consumed."

Professor W. O. Atwater, formerly Professor of Chemistry in Wesleyan University, and now of the United States Department of Agriculture, who is recognized as an authority in Nutrition and Dietetics, and has contributed the articles on Dietetics in the last edition of the Encyclopædia Britannica, has given us a table showing the "Composition of some of the Common Food Materials," the study of which is of special interest with reference to the subject we are now considering, and which enables us to compare the percentage of nutritives and mineral salts in flour with that of other common food materials.

The following extracts will prove of interest: The percentage of protein in fresh meat varies with the kind of animal and the part, varying from 13.4 per cent. in the loin of pork or of mutton to 16.1 per cent. in a chuck of beef.

In chicken and goose we have about 13.5 per cent. and in turkey 16.1 per cent.

In fresh cod 11.1 per cent., and in oysters but 6 per cent.

In eggs we have 13.1 per cent., and in milk 3.3 per cent.

In nuts we have much variation, ranging from 5.2 per cent. in chestnuts to 11-5 per cent. in almonds.

In fruits and fresh vegetables the percentage is quite small, varying from 0.3 per cent. in apples to 1.8 per cent. in potatoes, or less than 1 per cent. in fruits and less than 2 per cent. in vegetables.

Dried beans, however, contain 22.5 per cent. and dried peas 24.6 per cent. of protein matter.

Compare these values with those of white wheat flour, which contains an average of about 11.4 per cent protein, and of graham flour which is here given as containing 13.3 per cent.

And what is of greater interest, inasmuch as it has been claimed that all the mineral salts had been eliminated from white wheat flour, we find that while a rib of beef contains but 0.9 per cent. of mineral matter, and other fresh meats varying from 0.7 per cent. to 0.9 per cent., white wheat flour, after all its sifting, bolting and purifying, still retains 0.5 per cent. of mineral matter, which is in excess of most fruits, including apples, grapes and oranges. The same, in fact, as that contained in tomatoes, and in excess of squash, and even potatoes have but 0.8 per cent. and cabbage and beets but 0.9 per cent.

Doubtless we are justified in accepting the figures of Professor Sherman of Columbia University, in his "Chemistry of Food and Nutrition." As analysis of the ash shows the presence of 0.98 per cent mineral matter in white wheat flour, which is very near the average in all common food materials.

The most reliable data will, I think, show that while the high patent grades of flour contain from 0.5 per cent. to 0.55 per cent. of ash (mineral matter), the standard grades of white wheat will avegage from 0.62 to 0.72 per cent.; in fact, the result of official tests at the United States Agricultural Experiment Stations at different points have verified this statement.

These facts will tend to show that white wheat does supply a liberal amount of mineral matters. This was the opinion of Graham Lusk, and even Dr. H. W. Wiley, in discussing the mineral matters of flour, says: "Enough is left, however, not only to supply the need of the body for mineral constituents, but also for the condimentary purposes mentioned above."

In reply to my request for further information as to the quantity of phosphates and other mineral salts present in refined wheat flour, Professor Snyder has sent me the following extracts from Professor Sherman's work and his comments thereon, which seem to me fully, to corroborate the conclusions drawn, and to show that white wheat bread does contain its full share of mineral salts :

"Professor Sherman of Columbia University, in his 'Chemistry of Food and Nutrition,' gives the following composition of the ash of milk and of wheat flour, along with that of many other foods." (Copied from Table 11, page 332.)

ASH CONSTITUENTS OF FOODS IN PERCENTAGE OF THE EDIBLE PORTION.

	CaO	MgO	K_2O	Na_2O	P_2O_5	Cl	S	Fe
Milk (cow)	.168	.019	.171	.068	.215	.12	.033	.00024
Wheat flour	.025	.027	.146	.04	.20	.07	.17	.0015

In amplifying on the result of this analysis, he writes as follows:—

"As to the chief constituents, *phosphoric anhydrid*, *potassium oxid*, *magnesia* and *iron*—there is but little difference between the amounts found in milk and refined white flour, the milk showing a total of .40 and the flour .37. The difference is less than would occur between duplicate analyses of the same material or between the results of two chemists analyzing the same substance. As to the ingredients not mentioned: there is an excess of *sodium* and *chlorine* in milk, which is due to sodium chloride or common salt. Since this ingredient (salt) is added in bread making, it is liberally provided for in the bread product and need not give us further concern. As to lime and iron: the flour has about six and one-half times more iron than milk. As to the lime, the apparent deficiency in the flour is of minor importance as compared with the most essential ash constituents such as potash, phosphates and iron, and they total practically the same in each food. Sherman states that 'inorganic forms of calcium are utilized in nutrition,' meaning that the lime in drinking water is available for purposes of nutrition. One can tell from the deposit in the tea-kettle if their system is likely to get enough lime or not.

"The point is: Milk is universally recognized as a perfect food rich in phosphates and other materials. Now, if milk is taken as the recognized standard, then any food which contains as much phosphate, potash, magnesia and iron componnds as milk must be a satisfactory food and in every way, so far as these constituents are concerned, the equivalent of milk. On the basis of a milk standard, therefore, refined white flour cannot be considered as deficient in phosphates as is so frequently claimed. If flour has as much phosphate material as milk, and all authorities show this to be the case, why condemn refined flour unless we also condemn milk? It is certainly illogical to say that milk is well supplied with phosphates and flour is deficient in phosphates, when according to chemical analyses they both contain the same amount."

In conclusion, I will briefly summarize the deductions which it seems to me we may properly make from the facts here presented:—

First: We have learned that the new process of milling has not effected any radical change in the character of the flour produced. While it has enabled the miller to obtain in his product a larger percentage of the nutritive elements of the wheat, it has also enabled him to eliminate more of the undesirable portions, including the dirt and offals.

Second: We have found that the elimination of the bran and germ has not materially reduced the quantity of protein matter, the flour still retaining about twelve per cent, which would appear to be its full normal proportion as compared with other food products.

Third: The result of the many tests made in this country and in Europe, including the long series of tests made by the United States Department of Agriculture, have without a single exception shown the superiority of the white wheat flour over that of graham or entire wheat flour as a food product

Fourth: It has been clearly shown that there is no foundation for the claim that bread made from white wheat flour is deficient in vitamins.

Fifth: It has also been shown that white wheat flour does contain its full share of essential mineral salts, and in this regard it compares favorably with milk and other common food products.

Bread made from refined wheat flour has long been regarded as one of the principal, if not the chief of, food products, and it would appear to me that a careful study of the facts will lead us to the conclusion that we must continue us to regard it.—The *New England Medical Gazette,* September, 1917.

The Homœopathic World, September, 1917, London.

The New England Medical Gazette, Boston.

The Homœopathic Recorder, August, 1917, Lancaster, Pa.

The Homœopathic Envoy, September, 1917.

The North American Journal of Homœopathy.

The New York State Journal of Medicine, July, 1917, *Brooklyn.*

Long Island Medical Journal, August, 1917, *Brooklyn.*

The Medical Times

The British Homœopathic Journal, September, 1917, London.

La Grece Medicale, August, 1917.

The Journal of the American Institute of Homœopathy, Sept. 1917, Chicago.

Journal of the Royal Society of Art.

Medical World.

New York Medical Journal, September, 1917.

The Calcutta Medical Journal, October, 1917, Calcutta.

The Indian Homœopathic Review.

National Magazine.

Vedic Magazine, August, 1917.

Indian Mirror.

Hindu Patriot.

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MEMORIAL ADDRESS*

By Eugene L. Mann, M. D., St. Paul, Minn.

Mr. Chairman, Members and Friends of the Institute:

Ladies and Gentlemen: We assemble to-night, before beginning the activities of the annual meeting of the Institute, to pay tribute to those whose life records have passed during the past year into the domain of history. These meetings must not be permitted to become mere routine; they have their message and lesson. The virility of any association is well shown by the spirit in which it honors its dead.

We speak of them as dead, but rather have they been born again, into a higher life. Our *first* life is prenatal, during which we are prepared for the activities of the present. The eye is perfected for receiving light, in total darkness; the ear attuned to perceive sound in perfect silence; the lungs formed for air in a chamber sealed from the external,—all a hope and promise for the life to be and all have their fruition in the life we now lead:—and so in this present life, certain hopes and aspirations, certain beliefs and feelings are formed which require a future and different existence for their fruition, the hope and promise of a future life, and at what we call death, we are but born again.

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*A. I. H., Sunday Evening, at Rochester, N. Y., June 17, 1917.

"There is no death : what seems so is transition,
This life of mortal breath,
Is but the suburb of the fields Elysian
Whose portal we call death."

The trees of the forest, though they gain nourishment and protection from the earth, yet live in their foliage, for truly is the leaf the laboratory of the tree, transmuting the elements of the air into nutriment for the life of the parent trunk, and when it drops in the fall, leaving behind it the bud, a promise for the coming year. So the American Institute of Homeopathy lives in its members and when they pass on they leave a promise for the future. A memorial address therefore should point forward rather than backward. Ancestor worship as practiced by some ancient peoples, was reactionary and led to deterioration and degeneracy; with its outlook ever backward, it contained no elements that made for betterment or progress, but ancestor veneration, while appreciating and honoring the work done by those who have passed on, is ever mindful of the promise for the future, is ever advancing and improving; the truest appreciation of any gift lies in its use and development and the greatest homage we can pay these members, is to realize that because they lived and toiled, we can progress and achieve.

Photographers take a composite of a group of individuals by imprinting on the same plate the various faces of the group for a fraction of the exposure time, and the resultant picture shows the facial lines and expression characterizing the group. Could we by some psychic means, take a composite of the mental and moral attributes of these men and women whom we memorialize tonight, we should find, I think, that the prominent characteristic attributes that would dominate the picture would be *courage* and *loyalty*. These lived and wrought during the time when adherence to their faith as homeopaths was beset with difficulties, during their active life, the opposition was composed of the

Uniformd, the Bigoted, the Scoffers, and an Homeopath was a physician without the pale;—the life of such was a continual warfare, constantly beset by prejudice and by whatever of humiliation could be brought upon them.

We would fain believe that in this 20th century the point of view of the opposition has changed, that the advances of scientific medicine has done much more to help than hurt us. The minimum dose, that pivot upon which revolved such a large disc of ridicule and obloquy has become an asset rather than a liability, since modern investigations of vaccines and bacterins, and our opponents today are composed of the investigators, who seek anew the foundation of all things and question all,—question to know; doubt to believe, not to deny; who in the changes and modifications too often lose sight of the old entirely, instead of finding in the old new meaning,—and so when these men lived and wrought, there was more need of courage—true courage—the rather to live for one's convictions than to die for them.

And the next most prominent characteristic in our composite would be *loyalty*. Some external force or object is necessary for the development of individuality. It cannot in the nature of things be built up entirely from within. If we would have peace and harmony in development, we must have loyalty, a loyalty that will harmonize the inner and the outer.

A man with longing and ambition becomes loyal to his country, becomes patriotic; and henceforth every act is done in obedience to that loyalty and to himself. In the crucible of patriotism, duty becomes privilege, self-sacrifice has lost its sting: to lose personality is to develop personality; and so these men in their loyalty to medicine develop their personality, their individuality. The trials and chagrins of a physician's life were by their loyalty turned into stages of development. Moreover, the object of one's loyalty should be such that it helps others to be loyal, that it develops a spirit of loyalty to the very essence of loyalty. The object to which loyalty attaches should, in order to be great, be broad, inclusive, never exclusive. Exclusiveness always weakens, inclusiveness broadens and strengthens. Homeopathy has always been inclusive—it has been for dominant medicine to exclude. Though bearing a name of sectarian meaning, we have ever been broader than the name would indicate, we have ever claimed and used the truths of the whole field of medicine.

King Midas of Phrygia asked of the gods that everything he touched might be turned to gold and his wish was granted him. He accumulated rich store of treasures but soon found that he himself was starving as all nourishment was turned to be gold by his touch. So the dominant school asked for pathology, for histology, for the miscroscope. To their honor they have developed these, but they have failed in practice. The opening clause of their organon might well read: The highest and best calling of the physician is to find out what microbe infests you and what he accomplishes. Like King Midas of old, with their wish gratified, they are starving; the trouble was that they were exclusive and their exclusion has been fatal. The microscope never has and never will tell the *all* of disease; man is more than his body, and with its individuality we must reckon in medicine; neither, on the other hand, do those who treat all disease from the mental standpoint embrace the whole of man. There is a physical man and there is a spiritual also, and Homeopathy embraces both. In its mental characteristics; in its individualization, it embraces the spiritual; in its pathology and bacteriology, it includes the physical; it is inclusive, not exclusive, and these men in loyalty to their cause develop a spirit of loyalty to the very essence of loyalty itself; they became broad, not narrow; inclusive, not exclusive.

Rabindranath Tagore, the mystic of India, in bringing the message of his country to Japan, praised the latter country for entering into and adopting the civilization of the West, the practical scientific materialism of the western countries, but cautioned them to remember that they too had a message, the message of the East,—spiritual, idealistic, and that in adopting the new, they must have a care lest they lose their birthright, and so we homeopaths have a birthright and we must not forsake it, it is well to appropriate what is useful of the new, to adopt the revelations of science, of the microscope, the discoveries of histology, of pathology. But forget not that we also have a message, contribution,—to regard the whole man mental and physical, to individualize. A ship that sails by rudder only, relying on the experience of the mate, is liable to be caught by every current and undertow, to the swerved from its course, sometimes dashed against the rocks, again whorled around in a maelstrom until it sinks; but a ship guided by chart and compass steers straight for the goal and is not swept aside by changing current. So the homeopath with belief in his inheritance is not overwhelmed by every new pseudo-scientific demonstration; he does not follow as an angel of light today what becomes dross tomorrow. Our standard is the star and not the inconstant flicker of the will-o'-the-wisp.

Our psychic composite would also reveal a characteristic *optimism.* The true physician is always optimistic; not with the optimism that disregards the darker side, but with the realization that the darker side, when courageously faced and analyzed, shows optimistic realities; as he goes through life and the practice of medicine, he *sees* much that is discouraging and dark and wrong, but he always *looks* for the true and the bright and the beautiful, he *hears* much that is discordant but he *listens* for the harmonies of the spheres, and so his optimism sustains and comforts in the depressed and darkened times and helps him to help and encourage others.

Contentment is another characteristic that appears in our composite,—what might be called an active contentment, not the contentment that smothers ambition, but that quality that kills out envy and enables one to hold a certain poise and to do that duty that lies nearest with all his vim and energy. A certain contentment and poise are necessary to the highest development, to the unimpeded activity of one individuality. The tree that grows exposed to the hard buffetings of the elements develops a certain hardiness and strength, a certain toughness of fibre that is admirable, but at best it is stunted and deformed as compared with the symmetrical growth of its more sheltered companion, and so the individuality that shields itself from the corroding action of undue ambition and envy attains a larger, finer, more perfect growth. An atmosphere surcharged with contentment is an ideal culture media for the growth of individuality.

We also find in our psychic picture *conscientiousness*, doing the very best one can. Abraham Lincoln once said, "I am not bound to win, but I am bound to be true: I am not bound to succeed, but I am bound to live up to the light I have," and Hahnemann introduced his great work, the Organon, with the statement, "The physician has no higher aim than to make sick folk well, to pursue what is called the Art of Healing." The high nature of the physician's calling makes for conscientiousness. All labor has a dignity, all labor demands conscientious performance, but the higher the goal towards which we labor, the greater the tendency to become conscientious; where one is dealing with life itself, nothing can be trivial or unimportant. All makes for thoroughness.

Again we find *altruism*, doing something for others. The whole training of a physician is on an altruistic basis. The physician who approaches his task with the *ego* prominent is never a success, however brilliant his attainments. The patient demands more, the sympathy, the buoyancy, the cheerfulness, the personality. The presence of the physician is a quality that counts for much, and is another indication that he deals with more than the mere physical and material. The spiritual and mental uplift that accompanies the presence of the physician in the sick room is a factor of great importance, and the physician soon learns that life is not a cup to be drained but a goblet to be filled; and finally, a very necessary quality in every physician is a *belief in God*; probably in no calling does one at times, come upon situations where the way seems so dark and the mystery so inscrutable as in the practice of medicine. The physician is confronted with conditions that so far transcent the material sphere in their interpretation, that the belief in a guiding Power that is above the purely physical is mandatory; and the sustaining power than can come only from above is essential, and the physician more than any one else, not even excepting the theologian, sees and experiences the sustaining power and soothing influence of an attitude of belief in meeting the serious crises of life.

And as we sum up the various attributes that are prominent in the mental and moral composite of the physician, do not they constitute *happiness?* For as you analyze happiness, can you paint it in truer colors than that of the individual with the courage of his convictions and loyalty to his cause, who pursues his life work in a spirit of optimism not tinged with envy, and with a conscientious effort to do the very best he can in each individual case, altruistic in spirit and with a convincing belief in God and an over-ruling Providence that somehow, somewhere commutes the apparent individual ill into the universal good.

And so as we memorialize tonight those who have gone to the great Beyond, we renew the strength and courage for our own work. Because they lived and wrought, we are the gainers, as expressed in an ode by Henry Harbaugh.

Have you heard the tale of the aloe plant
  Away in the sunny clime?
By humble growth of a hundred years
  It reaches its blooming time;
And then a wondrous bud at its crown
  Breaks out into thousand flowers.
This floral queen in its beauty seen,
  Is the pride of the tropical bowers,
But the plant to the flower is a sacrifice,
  For it blooms but once, and in blooming dies.

Have you further heard of the aloe plant,
  Thot grows in the sunny cline,
How every one of its thousand flowers,
  As they droop in the blooming time,
Is an infant plant that fastens its roots
  In the place where it falls to the ground,
And fast as they drop from the dying stem
  Grow lively ond lovely around?

By dying it liveth a thousand fold
  In the young that spring from the death of the old.
Have you heard the tale of the pelican,
  The Arab's Gimel el Bahr,
That dwells in the African solitudes
  Where the birds that live lonely air?
Have you heard how it loves its tender young,
  And carest and tolls for their good?
It brings them waters from fountains afar,
  And fishes the sea for their food.
In famine it feeds them,—what love can devise!
  With blood of its bosom, and feeding them, dies.
Have you heard the tale they tell of the swan,
  The snow-white bird of the lake?
It noiselessly floats on the silvery wave,
  It silently sits on the brake;
For it saves its song till the end of life,
  And then in the soft still even,
'Mid the golden light of the setting sun
  It sings, as it soars into Heaven;
And the blessed noted fall back from the shies,
  'Tis its only song, for in singing it dies.

Now hear these tales, we weary and worn,
  Who for others do give up your all;
Our Savious hath told you, the seed that would grow
  Into earth's dark bosom must fall;
Must pass from the view and die away,
  And then will the fruit appear;
The grain that seems lost in the earth below,
  Will return many-fold in the ear;
By death comes life, by loss comes gain,
  The joy for the tear, the peace for the pain.

"The joy for the tear, the peace for the pain," and in our hearts there lives a deep sympathy for those dear ones left behind, the companions of years, the wives, the families, to whom is ever present the poignant sense of loss. It is a most happy provision of nature, that as the years roll by and Time, a great assuager of grief, soothes and calms, it is the painful memories that are dimmed and obscured and the happy hours of comradeship brighten and illumine the memory pictures, "the joy for the tear, the peace for the pain." So comes the assurance of comfort in the future. In the today of grief, when all one's courage and faith are taxed in the mere holding on, comes with sweet and restful sympathy this poem:

He sees when their footsteps falter, when their hearts grow weak and faint:
He marks when their strength is failing, and listens to each complaint;
He bids them rest for a season, for the pathway has grown too steep;
And, folden in fair, green pastures,
He giveth his loved ones sleep.

Like weary and worn out children, that sigh for the daylight's close,
He knows that they oft are longing for home and its sweet repose;
So he calls them in from their labors, ere the shadows round them creep,
And silently watching o'er them,
He giveth his loved ones sleep.

He giveth it, oh, so gently! as a mother will hush to rest
The babe that she softly pillows so tenderly on her breast.
Forgotten are now the trials and sorrows that made them weep,
For with many a soothing promise,
He giveth his loved ones sleep.

He giveth it! Friends the nearest can never this boom bestow;
But he touches the drooping eyelids and placid the features grow;
Their foes may gather about them, and storms may round them sweep,
But, guarding them safe from danger,
He giveth his loved ones sleep.

All dread of the distant future, all fears that oppress today,
Like mists that oppose the sunlight, have noiselessly passed away,
No call or clamor can rouse them from slumbers so pure and deep,
For only his voice can reach them,
Who giveth his loved ones sleep.

Weep not that their trials are over; weep not that their race is run;
God grant we may rest as calmly when our work, like theirs, is done!
Till then we would yield with gladness our treasures to him to keep
And rejoice in the sweet assurance,
He giveth his loved ones sleep.

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LUMBAR PAIN: THE CLINICAL SIGNIFICANCE OF LUMBAR PAIN AS FOUND IN GENITO-URINARY PRACTICE.

By E. Russell Sprague, M. D., Rochester, N. Y., Genito-Urinary Surgeon, Hahnemann Hospital; Consulting G.-U. Surgeon, Syracuse Homeopathic Hospital and Other Institutions.

In the consideration of "back pains" we are confronted with a very large field for differential diagnosis, which the time allotted to this paper will not permit. It will be necessary, however, to trespass into the realms of differential diagnosis to bring to your immediate attention some of the phases of lumbar pains relating to urological diseases. So common is the utterance of a patient upon entering the office of the practitioner, "Doctor, my kidneys are out of order because my back aches," that we are many times misled into believing that the lumber pain is due to "lumbago," rather than to a true lesion of the kidney. It is, therefore, the object of this paper to enlighten you, if possible, on the subject of lumbar pains so that you will not overlook the possibility of a kidney involvement as the cause of the pain. Kelly tells us that fully 60% of the cases suffering with ill defined and obscure right sided pain, have the source of that disturbance in the kidney.

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Let us go back, therefore, to a study of anatomy, particularly to the nerve supply to the kidney region, for the reason for the production of pain and manner of perception. The kidneys, as you well know, are retroperitoneal organs and do not come into intimate relationship with the intra-abdominal viscera. Their position brings them, however, into close contact, through the nerve supply, which is cerebrospinal, with other organs of the body. We are compelled to recognize that the nerve supply to the kidney is from the cerebrospinal system, even though the theory may be that cerebrospinal fibres do not convey impulses from the cortex of the kidney; however, I hope to show that they do, from the fact that embryologically, research shows that the cortex of the kidney is derived from the mesoblastic tissue of the posterior abdominal wall, consequently in the early development some slight distribution of the spinal nerves to the kidney substance must have occurred. Whether this still persists in later life is problematic, but we are bound to confess that the capsule and the surrounding tissues contain cerebrospinal fibres, for it is by this phenomenon that we explain the aching pain in the back in capsular and pericapsular affections. We further recognize that sympathetic nerve fibres supply the parenchyma through their communicating plexi, namely, renal, and the lower and outer part of the semilunar ganglion and aortic plexus, to later unite with the lesser and smallest splanchnic. The origin from the spine, therefore, is through the 10th, 11th, and 12th dorsal and first lumbar segments of the cord and to these nerves and their distribution, we look for the "back pain" relating to urological diagnosis.

The direct cause of pain in the back, as elsewhere, is irritation somewhere along the course of the nerve supply. Since the nerve supply to the kidney is associated directly or indirectly with other organs intra-abdominally, you can readily see that irritation arising anywhere along the course of the nerve may be referred to any or all of the organs supplied by this nerve. We infer from this that disturbance in the kidney may give rise to pain in other organs associated and the reverse may be the case, so the pain syndrome alone will not lead us to a diagnosis, unless we have other associated symptoms, as tenderness on pressure at the costavertebral angle and the urinary findings to corroborate the actual kidney involvement.

The cause and location of nerve irritation causing kidney pain *per se* has been the subject of extensive study and the conclusions arrived at are that nearly all kidney pain is due to stretching or pressure exerted on the nerve filaments terminating in the capsule or just beneath, and the pressure usually due to an acute renal engorgement. In the chronic or slowly progressing disorders, the pain is not marked or may be absent until some sudden strain has been placed upon the capsule when the pain occurs.

The character of pain in the back from the urological standpoint is important. For instance, in some cases, especially in the early involvement, a well defined pain may be absent, but there exists a sense of discomfort and distress in the corresponding iliac fossa or lumbar region. If the process continues, the distress may increase to a well defined local pain. If the pain is of a dull aching character, the strain on the causule is slight, as is shown in large white kidney of nephritis, or in diseases producing slowly development intracapsular tension. On the other hand, a kidney in a state of hypertension from engorgement will present lumbar pain of a peculiar rhythmic type, synchronous with the cardiac contractions, as it forces blood into the kidney to increase the already overstrained capsule. Therefore, any sudden increase in the intracapsular tension will produce acute pain, as is experienced in renal colic. To illustrate this particular pain syndrome, Watson reported a case of apparent renal colic, but when the kidney was opened it was found to be free from stone, but with a thickened capsule. Bevan claims, as do others, that the pain of renal colic is not due to the passage of the stone, but, due to intracapsular tension from a sudden blocking of the ureter. This theory will be again considered later on in this paper. These cases seem to strengthen the theory that pain is due to the increase of the tension by blocking of the ureter whether from a stone, clot or debris, or, as in Dietl's crisis, by a twist or kink of the ureter, producing its cycle of symptoms so characteristic of "wandering kidney." This latter condition illustrates the association of the sympathetic nervous system with the solar plexus.

For clinical study, I have grouped the lesions with lumbar pain, which I wish to bring to your attention as relating to genito-urinary practice, into two divisions. In the upper division are those diseases or pathological changes in the kidney and upper ureter. This division extends from the 10th dorsal to the 4th lumber vertebra. The lower division comprises diseases or pathological changes from the lower half of the ureter to the prostate, bladder and seminal vesicles, and extends from the 4th lumbar vertebra to the end of the sacrum. The nerves supplying this upper division come from the 10th, 11th, and 12th dorsal and the the first lumbar segments of the cord. The lower division is supplied by the lower lumbar segments and the sacral nerves. It is in the upper division that we find the largest percentage of "back pains" with a urological significance.

In view of the fact that congestion and inflammation are so closely allied, I will combine them under the one head of congestion, for acute pain in the kidney *per se*, depends upon the degree of kidney congestion and intracapsular engorgement present to produce the strain on capsule.

In sudden attacks, the pain is pulsating and synchronous with each cardiac contraction, and may be paroxysmal at times with the pain radiating to the epigastrium, bladder or down the thighs. As the acute symptoms subside a dull continuous ache characterizes, much like lumbago, which is worse by stooping, or may show only the signs of local tenderness or pain by percussion or jar. In chronic congesting, the pain syndrome may be of little value in reaching a diagnosis without other clinical signs. In nephritis, many cases, because of the slow development, escape without the slightest signs of pain, and yet have the disease for many years. Industrial workers laboring in a stooped or crouching position for long hours, as brass and tin workers, have complaints of pain in the lumbar region, due to an alteration of the spine, a sort of anchylosis caused by work done in one continuous position causing circulatory and trophic disturbances.

Movable Kidney.

This is a far more common malady than one expects. Johnston tells us, though his ratio is low, that only 11 out of 200 patients were found to have movable kidney, and only one of this series had a symptom referable to it, while usually there is a sensation of a pulling or dragging in the back. The symptoms of acute pain are experienced only when the ureter becomes blocked or twisted, at which time the strain on the capsule will produce pain of a dull aching character or the symptomatic cycle of Dietl's crisis, with the associated symptoms. The lesion is far more common on the right side, as shown by Kelly. The pain may be so slight that the patient oft-times is not aware of the displacement until the attention is called to it by examination, thinking that it is the liver causing the pain. In all cases when present the pain is made worse by standing or exercise, and is generally relieved by lying down. I have repeatedly seen this symptom in patients who suffer with so-called "inflammation of the liver." In women the pain is more apt to be worse when the corsets are removed at night, which permits the kidney to "wander" and the ureter to become blocked. The associated urinary changes, tumor due to hydronephrosis and digestive disturbances, help to diagnose the lesion. The kidney if palpable is, as a rule, sensitive to pressure.

Renal Infarction.

In this lesion the pain is of great value in diagnosis. It is usually sudden, burning and stabbing in character, but free from any tendency to be paroxysmal. In the septic variety if the embolus is infected, the pain is more pronounced than in the non-infected type. Should the clot become infected after the infarction, there is a slow increase in the pain. The pain may be located in the central part of the abdomen and back, or it may be without definite localization. In renal infarct the pain, contrary to nerve distribution, does not radiate into the region supplied by the nerves. Exercise or in many cases only the slightest motion will aggravate the pain, while relief comes from lying on the affected side in some cases, while the contrary in others. As the anterior abdominal wall is apt to be contracted, palpation is impossible, particularly to deep pressure. We can also elicit kidney tenderness by kidney percussion, with the blow delivered upon the back of the hand with the palms on the skin and the patient bent forward. In view of the tendency to overlook the acute pain relating to infarction, it may not be remiss to name some of the other conditions which simulate this pain in other involvements. For differentiation, we have (1) appendicitis, (2) gastralgia, (3) peritonitis from perforation, (4) acute ileus, (5) gall stones, (6) lead colic, (7) embolism of the mesenteric arteries, (8) gastric crisis, (9) other painful lesions of the kidney, primarily, calculus, paroxysmal exacerbation of a chronic nephritis or ureteral block.

Renal Calculus.

I have placed this also among the acute affections, as the pain syndrome does not appear until the outflow of urine through the ureter is interfered with. Calculi may lie in the pelvis of the kidney for many years without producing symptoms, or until the blocking of the ureter occurs. The pain may vary, from a sense of dragging or weight in the lumber region to an agonized pain requiring a powerful anodyne to relieve. The pain does not differ much from other lesions producing obstruction, except in severity. It is variable in its intensity, location and radiation, and it also varies as to time from a few minutes to hours. The radiation is usually down the ureter over the ilium to the labia and ovaries in the female, to the testicles and scrotum in the male, also down the thighs and to the shoulder or opposite kidney. Kelly tells us that only 50% of the cases of kidney stone have colic, so we can see readily that a large number of cases carry calculi in the pelvis or kidney substance and do not know it. Many cases show the classical symptoms of colic, yet when the kidney is split nothing is found. Evidently such cases must have had colic, but due to other causes than a stone, usually a clot or debris from the kidney which has produced the sudden intracapsular tension. Watson reports a case, which I previously mentioned, wherein the kidney was split but failed to reveal any cause for the obstruction but a markedly thickened capsule which when split relieved the tension and the pain. Keyes reports a like result in a case of chronic granular kidney. Bevan also reported a case with colic, but upon splitting the kidney the stone was found impacted in the ureter, and its descent was watched by the x-ray and the patient experienced pain at no time. This case in particular shows that the strain on the capsule is the cause of the pain and not the passage of the stone.

A Few Illustrative Cases from My Own Clinic.

The first case had the classical symptoms of renal colic. A day after admission to the hospital, and previous to operation, he was seized with pain of such severity that he collapsed and required stimulation for nearly an hour before he was in shape. All examinations were negative to stone. A very tight stricture of the anterior urethra produced back pressure sufficient to induce sudden exacerbation of the intracapsular tension, which was greatly relieved by cutting the stricture. There was subsequent disappearance of all symptoms nearly two years ago, with no recurrence to date.

The second case, somewhat similar, had colic well marked, but in this instance was due to a clot of blood from a tuberculous kidney, and the kidney, when removed later, proved to be such and was free from stone, but pus and debris were in the pelvis of the kidney. At no time since has any evidence of a stone been seen.

In the third case the colic was so severe that it required a grain and a half of morphin, and then chloroform to get relief.

Two days later another slight attack occurred. X-ray was negative and urinalysis showed only slight amount of pus but abundance of squamous epithelia. At operation no stone was found, but a very gently thickened capsule, and a patent ureter. A relief of all symptoms followed the operation and there was no recurrence of symptoms for four weeks, when the patient was discharged and, unfortunately, I have been unable to follow the case further. This case had one very peculiar symptom characteristic of thickened capsules, namely, aggravation before a storm or during damp weather, which to my mind shows the effects of barometric changes in producing intracapsular tension by kidney engorgement.

These cases just cited show clearly that renal colic is not always due to stone, but to a sudden block of the ureter and the subsequent back pressure and strain on the capsule by kidney engorgement. The phenomenon of vomiting, epigastric pain, and collapse of Dietl's crisis exemplifies the close connection of the cerebrospinal nerves, through the ramifications of the sympathetic nervous system with the solar plexus.

Perinephritic Abscess.

This lesion is usually progressive from inflammation to abscess formation, and not until the latter develops do we experience the acute pain which is associated with tenderness. The posture of the patient is characteristic. Because of the nerves in the perirenal region, the pain is referred to the areas of nerve distribution connected with the lumbar plexus,—iliohypogastric, ilio-inguinal and crural, obturator, etc.,—or may be referred down the thigh to the knee, confusing with hip joint disease, especially if an abscess is in the lower pole of the kidney. If the abscess is in the upper pole, we look to the intercostal nerves and areas of distribution. If the sheath of the psoas muscle is involved, we would expect pain along the course of the anterior crural and genitocrural nerves. Palpation and percussion are somewhat painful, but not marked, with the point of greatest tenderness over the kidney triangle, erector spinae, 12th rib and internal oblique. I might add at this time, that all kidney lesions are painful at this point (kidney triangle), but markedly so in perinephritic abscess. Again, if suppuration occurs in the parenchyma, any anterior abdominal pressure will elicit pain, while in perinephritic abscess the tenderness is found in the loin. The differential diagnosis lies between pleurisy, hepatitis in right sided lesions, splenitis in left sided, osteomyelitis of the vertebra, appendicitis with abscess, and gallstones.

Pyelitis.

Pain may or may not be present, but in 75% of the cases it is manifest at some time during the course of the disease. The pain is more severe in the acute varieties, or in acute exacerbations of the chronic form, but then it is due to a blocking of the ureter from debris, or to increase in the intracapsular tension from barometric changes or chilling of surface of the body. The pain may be radiating to the thigh, perineum, genitalia or upwards to the shoulder or even to the epigastrium, but may be confined to the lumbar region. If the pain changes to a pulsating nature, we assume that a renal abscess is forming or has formed. Relief of the obstruction causing the pyelitis usually eases the pain. A case of my own clearly illustrates this point. This woman had a stricture of the ureter about four inches from the vesical end of the ureter. By stretching this stricture, the back pain has been relieved and the early hydronephrosis has been stopped, as a pyelogram shows.

Renal Tuberculosis.

Pain in the loin is seldom severe in the early stages. Occasionally it is the first and only symptom to attract the patient to the beginning of the involvement. It is usually a dull ache or dragging in the kidney region, but if a mixed infection should occur with abscess formation, the pain will become conspicuous and severe. Pain may be referred to the healthy side, and especially so if sudden stress has been placed on the healthy side. Pain in the loin is found in about 45% of the cases, and increasing in about 4%, while 7% have pain in the form of renal colic.

Hydronephrosis.

Pain is not marked except when sudden intracapsular tension occurs, and this early in the course of the disease, when the obstruction is first present. The pain syndrome is of little value for the diagnosis of hydronephrosis *per se*, for the associated symptoms are necessary for the diagnosis.

New Growths.

The pain is due to dragging upon the surrounding kidney tissue and to increase in the capsular tension from blocking of the ureter and subsequent pathological changes, or pressure on the tender kidney from contracting abdominal muscles.

Among the lower divisions of the back, the diseases producing pain in the sacral region are usually prostatic and seminal vesicular. Numerous cases have come under my observation with pain in the back and sacral region, even in the hips at times, where the cause of the pain has been found in these organs. Pain may also be caused by ulceration on the floor of the bladder, or from an impacted stone in the lower end of the ureter. From these conditions we have to differentiate a sacro-iliac, hip joint disease, psoas abscess or hemorrhoids and rectal inflammations.

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EDITOR'S NOTES.

The use of Saccharine.

In a recent letter to the public press Dr. H. C. Ross stated that saccharine—the sale and manufacture of which he says have been prohibited in America on the grounds that as a sugar substitute it is a fraud, and that in certain doses it deranges digestion—has been shown by research in this country to be a possible predisposing cause of a serious malady of the stomach. This rather cryptic warning has incited a correspondent to inquire if there are good reasons to forbid patients the use of saccharine. The research in this country to which Dr. H. C. Ross refers is presumably that undertaken under the John Howard McFadden endowment by himself and others into cell reproduction and cancer, in the course of which it is shown that paraffin, vaseline and other derivatives of coal tar act as "auxetics" or agents stimulating cell proliferation. It is in virtue of the contained auxetics that soot and tar cause squamous celled carcinoma of the scrotum, and that kangri cancer in Kashmir is set up by contact of the soot on the braziers with the skin. But so far there does not appear to be any reliable evidence that saccharine has produced gastric carcinoma in man, or that its toxic effects are very obvious. In fact, all that Professor W. E. Dixon says in his textbook of pharmacology on this subject is that, though most coal-tar derivatives when taken continuously irritate the kidneys and cause albuminuria, it is uncertain if saccharine has this action; and in his recent work on "Food Poisoning" (p. 41, Chicago, 1917), E. O. Jordan states that in daily doses of 0 3 gram saccharine is likely to induce digestive disturbance. There does not, therefore, appear to be sufficient evidence to warn diabetics and obese patients who take saccharine in strict moderation to forego any satisfaction they may thus obtain, and we believe that the Food Committee of the Royal Society has come to a similar conclusion.—The *British Medical Journal*, September 15, 1917.

Champhor in Cardio-Vascular Diseases.

Therapeutic observations by Professor Marfori, of the University of Naples, with regards to the action of camphor on the cardio-vascular system, have brought to light certain properties which deserve attention. Hitherto this durg has been looked upon as the last resource to prolong the life of a diseased and exhausted heart, and injections of comphorated oil have been almost exclusively reserved for counteracting cardiac collapse in acute infective disorders or the threatened paralysis of the last stages of heart disease. Professor Marfori and his assistant, Dr. G. Leone, found that the isolated mammalian heart, when poisoned by chloral so as to render the pulsations barely perceptible, could be rapidly restored to action by comphor, and furthermore, that its action on the circulation was very characteristic, as it could be proved that small doses invariably caused a diminution of arterial pressure and at the same time increased the volume of the cardiac pulsations. Only toxic doses of camphor give rise to increased arterial pressure, accompanied by convulsive phenomena which seem to be independent of the vaso-motor centres, as they are observed even during profound narcosis when these centres are rendered inexcitable. Hence during the course of chronic myocarditis with simple cardiac insufficiency, changes in rhythm and auricular fibrillation, Professor Marfori considers no other drug can compete with comphor in sustaining the activity of the heart and steadying the pulse. He noticed that the beneficial effects obtained were continued after the drug was suspended, but recommends systematic treatment for a long period by giving one, or two, daily hypodermic injections of 0.10 gramme in oily solution. These doses may also be given by mouth as they are well borne. In valvular lesions, when disturbance of the pulmonary circulation and hypertension in the right ventricle predominate, camphor is the most rational and efficacious remedy. The drug is also quite useful in the pulmonary sclerosis of tuberculosis and in arterial hypertension with hypertrophied heart, vascular spasm of climacteric origin, and arterio-sclerosis; it is capable of inducing beneficial changes in disordered function of the myocardium and especially of the right ventricle. In conclusion, Professor Marfori says that camphor must no longer be considered merely as a remedy in the hour of death, but rather as a drug which, when intelligently administered, is capable of producing beneficial results throughout the entire course of various cardiac and vascular diseases owing to its special properties, which are distinct from those of other heart drugs.—The *Lancet*, September 22, 1917.

The Protective Functions of the Skin.

The function of the skin as a mechanical protection to the organs which lie within it is so obvious that it may have led to the overlooking of other equally important protective functions. The skin as a whole may of course, be regarded as an organ with a common and complete function of its own, to which view testimony is borne by the complete way in which it suffers in certain infectious diseases, such as scarlatina and variola; and it should be noted that it is precisely these infections in which the skin plays a large part where permanent or nearly lifelong immunity results. Professor B. Bloch, head of the dermatological clinic in Zurich, discusses some of these immunity problems in relation to the skin in a novel and suggestive way in the *Correspondenz-Blatt für Schweizer Aerzte* for August 4th. He notes how seldom general paralysis or tabes is associated with a cutaneous gumma in the same patient and how rare it is to see these late parasyphilides at all in countries where in consequence of defective treatment severe tertiary lesions are common in the skin. He quotes the statistics of Mattauschek and Pilcz to confirm the relative infrequency of tabes in patients with early abundant cutaneous involvement. Taken together these and similar observations lead Dr. Bloch to lay great stress on the allergic function of the skin, its reaction to an unwelcome intrusion of which it had once had experience. The classical researches of Richet, v. Pirquet, and Romer have shown how the cutaneous manifestations of tubercle are influenced by this function of allergy which regulates their clinical course as well as the anatomical structure of the tuberculous nodule itself. Cutaneous tuberculides are nothing else but the reaction of the forewarned skin of the chronic consumptive to any isolated bacilli brought by the blood stream. Historically it has been from studies of the skin—beginning with Jenner's vaccination and Koch's fundamental experiment of tubercle inoculation in the guinea-pig—that most light has been thrown on problems of immunity. Due in part to the fact that the skin is so favourably situated for exact observation, the fact probably remains that it is to the external covering of the body which we must look for the most important workshop of the immunisation. The struggle against attacking microbes from without has slowly adapted the skin and given it the ability to react against the parasites themselves as well as their toxins with the process which we now know as allergic inflammation. This function has been gradually acquired in the history of the race and of the individual, since neither the skin of the lower animal nor of the new-born child reacts in at all the same way as that of the human adult. In this quality Dr. Bloch sees one of the most important relations between dermatology and general medicine.—The *Lancet*, September 22, 1917.

Bismuth Poisoning.

That toxic and even fatal results may follow the use of bismuth is not generally appreciated, though the late Professor Kocher in 1903 condemned the use of bismuth subnitrate as a dusting powder for granulating wounds because he had observed ill-effects. Stomatitis, with ulceration and loosening of the teeth and pigmentation of the buccal mucosa, vomiting, diarrhœa with passage of blood and mucus, and nephritis are the principal manifestations. In the *Cleveland Medical Journal* for June Professor John Phillips, of the Western Reserve University, has reported the following case. A lad, aged 13 years, was admitted into the hospital on Oct. 7th, 1915. Three month before he was wounded with a pitchfork in the left knee. The joint became red and swollen, so that it had to be opened and drained. A sinus was left which closed after some time. Five weeks before he was seen he began to complain of soreness of the mouth, which grew rapidly worse, so that he could take only fluids. He was much wasted. The breath was offensive and foul mucus constantly dribbled from the mouth. The posterior part of the tongue and hard palate, the uvula and the gums were covered with a darkgrey necrotic mass which could be easily removed, leaving a bleeding surface. The cervical glands were enlarged. There was firm swelling of the left knee-joint. The urine contained a slight amount of albumin and hyaline and granular casts. At first cancrum oris was diagnosed, as the slough obscured the pigmentation. After about 10 days the slough separated, leaving a bleeding surface, and pigmentation of the mouth, particularly of the gums, was observed. Three days after admission he had three general convulsions. A week later severe diarrhœa, with much mucus and some blood in the stools, began. It was then noticed that there was marked pigmentation of the rectal mucosa. He became so anæmic that on Oct. 23rd the red corpuscles numbered only 1,500,000. The correct diagnosis was not made until Nov. 8th, when the X rays revealed in the knee-joint a large quantity of bismuth (which it was then ascertained had been injected into the sinus). The joint was opened and as much of the bismuth as possible removed. Transfusion of blood was performed, but he died three days later. The necropsy showed acute ulcerative colitis, acute parenchymatous nephritis, and diffuse brown pigmentation of the viscera, especially of the colon. From the use of bismuth subnitrate another kind of poisoning—nitrite poisoning—may result. Professor Phillips reports two cases. A child, aged 4 years, was seen in consultation. On the provious day she had been given for colitis a drachm of bismuth subnitrate in a starch enema. Twelve hours later she became nauseated, very cyanosed with a small weak pulse, and partially comatose. This condition continued throughout the day. The blood was very dark. The colon was irrigated repeatedly. Within 24 hours she was much better, the cyanosis being less marked, and by the third day all the symptoms had disappeared. In the second case a man, aged 50 years, was seen in consultation for stupor and cyanosis. On the previous day he was given an ounce of bismuth subnitrate in milk for X ray examination of his stomach. During the night he was nauseated and had a severe chill. Towards morning he became cyanosed and unconscious. When seen he was deeply cyanosed, the mucous membranes being plum-coloured. The pulse was 140 and very weak. The colon was irrigated several times and much bismuth washed out. Under stimulation and transfusion of blood he recovered. These cases show that bismuth subnitrate should be given with care and not be used for the purpose of X ray examination.—The *Lancet*, August 18, 1917.

Race Retrogression.

By Robert H. MacNair, M.D.,

Springfield, Mass.

If we would be guided by historical records of Scripture it is impressive to note that in the ancient Hebrew tribes sterility was invariably considered a severe curse in the family. It was recorded that in the prolific family circle of Jacob when Rachel became sterile for a time she cried out to her good husband, "Give me children or I die." There also seemed to be not a little jealous rivalry between Rachel and Leah in bringing forth sons. A little further, back good Abraham prayed to the Lord that the barren womb might conceive, even though his wife was past the child bearing period. Later, Samuel's mother even made a vow to the Lord, that if she should be blessed with a son he should be literally given to the holy service in the temple. On down through the ages the progress of this natural function of man can be traced, until the period of advanced Christian civilization. From the retrospective consideration of the important process of race propagation, let us look into conditions along the same line applying to the modern era of the world's humanity.

If there was progress in propagation among ancient generations, assuredly the conclusion is obvious that the situation today must be termed retrogression, a process directly opposed to progress. While we may not be willing to admit that intellectually or physically we are undergoing retrograde metamorphosis, we are most assuredly face to face with the fact that, instead of bewailing the ill fate of sterility as did the Hebrew mothers, the young woman of today too frequently bewails the misfortune of bringing forth an heir. It would seem that sociologists and other scientists have adduced a number of reasons for such unnatural state of modern society. It might be argued upon the basis of the very high cost of living; it may not seem wise to bring more mouths into the world to feed or more little bodies to clothe, with young minds to educate, etc. However, while various arguments are being formulated, good Dame Nature is crying out against another outrage by modern man; the highest product of her handiwork is doing most to obstruct her work by direct violation of natural laws.

The suggestion may be offered at a venture, by way of formulating another reason for this violation, that the serious cause may be found in man's disinclination to acknowledge one of the most universal natural laws, viz., the law of compensation. It has been handed down since the very dawn of creation as an immutable rule that there are offsets to everything that man may conceive of as an attractive advantage. Every advantage has its disadvantages; there are also many blessings in disguise. One interesting instance is recalled that may serve as an illustration of the compensation that came—it was also termed retribution—to an apparently normal couple that for a number of years seemed directly to thwart Nature's course. The evidence in this case came from authentic sources and indicated that a healthy, vigorous young couple fought against natural function for a number of years. Finally, however, it was concluded that an offspring would add to the happiness of the couple—to comfort their declining years, probably. In due time the offspring came. It was a son. He developed physically but not mentally until a period of growth was reached when it was determined that he was an idiot. In that case we might say there was compensation with a vengeance, even though it might have been argued that the case was a mere coincidence. A number of coincidences might be added to this in connection with the same violation of natural laws from the working experiences of many modern gynecologists. The records may possibly indicate that not a little organic and serious functional trouble directly results from the frequent obstruction of Nature's work.

If the propaganda of scientific birth control would act as a preventive of such serious aftertroubles, there may be much benefit from substitutions of a lesser for a greater evil. But then, in line with that same widely applied law of compensation, the business of the good gynecologist would most assuredly suffer. In this section of the country, the New England of steady habits—when the Puritan was here—large families became such prize rarities that one good farmer and his wife with a round dozen husky children, many of whom it was my privilege to welcome first into a strange and so called cold world, sent a photograph to a President of the United States, one who was a vigorous exponent of the large family group. The proud parents received an autographed letter of thanks and congratulation.

Unquestionably there are social causes that produce effects to render very many prospective mothers unfit for the natural function of child bearing. However, there are precious few that could not in time be eliminated by a stricter conformity to natural life requirements in the growing and developing prospective mother. It would doubtless be worth the elimination of an enormous pile of modern conventional rubbish if by conforming to the simple requirements of a wholesome natural life more of the physical strength and vigor with less of the tendency to sin against a most generous nature, could be developed into the race of modern man. How, may we ask, will modern birth control bring about an improvement in a social question that other scientists than the gynecologist have spent considerable time and labor upon? One set of workers, the sociologists, have endeavored to bring about measures to prevent a social evil, while the gynecologists have labored to correct abnormalities that too frequently result directly from violations against nature. When the normal fetus is allowed to develop *in utero* to term and succeeds in making its safe entree to the world toward which it was directed *nolens volens*, whether from other conventional rules or otherwise, natural lactation fails and the ever convenient nursing bottle is resorted to, by such unnatural feeding, for normal growth and development, many victims come under the care of another line of medical scientists—the pediatrists. It must seem logical that, under such substitution for nature's plan of feeding, there must result inevitably a process of deterioration in both the physical and mental organism in the succeeding generations. Most frequently during the entire period of what should be natural lactation, the anxious mother is kept under a constant strain of anxiety which in time reacts disastrously upon the sensitive nervous system. Then, too frequently also the long list of neurasthenics is again added to. The above suggested causes with clearly apparent effects are so prevalent that a simple allusion to them is sufficient.

To indicate the one and only true remedy would seem exceedingly simple; however, its simplicity must assuredly be the stumbling block to its universal application. The reason may be found in the fact that modern conventionality does not countenance simple, natural life methods, not as an every day working formula, as the good Dame Nature does. We might contend that it would be vastly better and more sensible to serve the very best interest of the race of man by conforming to the simple rules of growth, development, and usefulness in the temporal life. The latter course would also insure more natural and lasting happiness than for modern, progressive humanity to be aping sticklers of conventionality. But what is to be gained by contending anything different from that which appeals most fascinatingly to the faddy, changing fancy of modern, Christian civilization?

There seems to be a constant attraction in new things, possibly because we live in an exceedingly faddy era. It may also be due to the fact that we are so very progressive along almost every line. It has been thought that one of the reasons why history repeats itself with such unerring regularity, is because of the constant and repeated violation of natural laws.—The *New York Medical Journal*, August 18, 1917.

Gleanings from Contemporary Literature.

CANCER: CUMULATIVE EVIDENCE OF THE EXTRINSIC ORIGIN; CONVINCING EVIDENCE THAT MINERAL STARVATION IS A PREDISPOSING CAUSE.

Pathologic Cittaroplasty. Conjunction of Dissimilar Cells of Diverse Embryonic Origin. Cancer Hybridization.

By Horace Packard, M. D., F. A. C. S.

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In the absence of positive knowledge as to the cause of cancer we are in a somewhat chaotic state of mind as to what our attitude should be toward it. Should it be treated as a contagious disease? Should those who have cancer be looked upon as distributors of some kind of a parasite or virus which may pass the disease to others? Is the disease a spontaneous metamorphosis of epithelial or connective tissue cells without any reason therefor and in anticipation of which there is no preventive? Is the disease of biochemic origin, each case arising from some intricate change in the chemical balance or reactions in the individual metabolism?

These are theories and as far as the writer's knowledge goes, all the theories there are relating to the cause of concer.

Any theory to be of value in deducing conclusions must be supported by facts. The law of gravitation is only a theory, but a theory so well supported by facts that it has become accepted the world over as a law controlling certain phenomena well-known to all persons. No one ever saw gravitation and probably no one ever will, but the effect is apparent and we reason back to a plausible hypothesis to account for it.

Are we not confronted by exactly the same conditions in regard to cancer? We have been hunting for a visible cause of cancer for one hundred years—and where are we? It does not concern us particulrly what the cause of cancer is—we seek a preventive or cure. The fact that we have isolated and seen and cultivated the tubercle bacillus has contributed but very little to the prevention and cure of tuberculosis. We now know that maintenance of resistance to the disease by hygienic living is of far greater importance than any means we can bring to bear for extermination of the bacillus or through curative drug or toxin.

Surveying the field of cancer, are there any facts in its natural history which give reasonable support to any of the theories above outlined?

The last two, taking them in reverse order have not a scintilla of supporting evidence. No one has yet proven to the satisfaction of the world that any chemical poison or any chemical reaction ever has caused living cells in either the animal or vegetable world to take on the phenomena presented by human cancer.

No known example exists of any healthy living cell in animal life or plant life taking on an erratic development, changing its shape, encroaching upon and destroying other neighboring cells, migrating to other parts of the body, and then planting new colonies of growth without the implantation upon, amongst, or within those cells of a living organism—cell, bacterium, protozoon, or fungus of another kind.

Attention has been called to this phenomenon in previous communications. In one of those a law of reaction was suggested as a governing force in the behavior of normal cells when encroached upon by the implantation upon, amongst, or within them of cells of another kind. This theory is supported by such an array of cumulative evidence that it can no longer fail to be accepted as a fact to be carefully weighed in our study of the cancer problem.

On analyzing Nature's ways in cell life we find, in the main, an orderly course of events. Dissimilar cells (the spermatozoon and the ovum, but of exactly the same embryological origin) unite and a process of physiological cell bulding (cittaroplastia) begins and goes on in a most vigorous way to the ultimate creation (under favorable environment) of a complex organism perfect in from and function.) We have said that for this process of physiological cell building the original dissimilar cells must be of *exactly the same embryological origin*. The union of dissimilar cells of diverse embryological origin is always barren or the complex organism resulting thereform perishes without further issue. A familiar example of this is union of the sexual elements of the horse and the ass; and the salmon and the trout. The product of such cell building is neither horse nor ass, neither salmon nor trout, but a hybrid which is barren so far as reproducing itself is concerned and ultimately perishes.

Have we not in the natural history of cancer an instance of hydridisation? The cancer en masse—the cancer tissue—is hybrid material, the product of cell building of two dissimilar cells of diverse embryonic origin.

The cell building is pathologic. The product as a complete structure perishes, never to reproduce its kind. The epithelial cell and the connective tissue cell is a product of normal animal life and remains normal in form and function until it becomes impregnated by the *x* cell (the unknown) which changes it into a cancer cell. This bastard product of the chance union of two dissimilar cells of diverse embryological origin ceases its existance with the death of the host, consequently there is no continuity in its life history. Recurrence takes place only on conjunction of the *x* cell with a sane epithelial or connective tissue cell.

All through plant life and all through animal life, this potentiality for good or for evil of one kind of variety of cell upon a cell of another kind or variety is unmistakable. The physiologic activities of the pollen of plants upon the ovules of plants and the spermatozoa of animals upon the ova of animals are phenomena so commonplace and so a part of the orderly course of events in Nature that we have heretofore failed to recognize in it a probable law of Nature applicable to all cell life. It is but a step from life physiologic to life pathologic. In a previously referred-to essay, the writer has described numberless known instances of tumor growths in plant life which directly follow implantation upon or amongst plant cells of a fertile cell or ovum of another kind, notably of insect ova*. Here are illustrations of what we must accept as physiological development of the insect cells, but their presence or influence upon the cells of the host brings about a pathological change.

In plant life the production of tumors and cancer-like growths as the direct result of parasitic invasion is no longer an inference but positive knowledge. The study of tumors and cancer-like growths in the plant world offers the widest scope for investigation because the parasites which cause these growths are of devious character.

1st. Insects which cause the familiar vegetable tumors known as the oak apple (andricus punctatus), the bulges of the golden rod (trypeta solidaginis), which do not kill the host, but are simply incidental local vegetable tissue over-growths resulting apparently from stimulation of a cell of another kind implanted upon or amongst the host cells.

2nd. Low forms of parasitic plant life (fungi) as the dwarf mistletoe; (arceuthobium pusillum) which causes the great broom-like overgrowth (witch's broom) of the common spruce of New England and finally kills the host. The dimerosporium collinsii which is parasitic upon the common shad bush and produces similar brooms. The peridermium harknessii which causes the remarkable tumor growths of the lodge pole pines of the Yellowstone Park. The exoascus almitarquies of the black alder which produces enormous overgrowth of the scales of the cones. The hypomyces lactifluorum which so changes a species of lactarius (common mushroom) that it is unrecognizable.

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* A Possible Factor in the Cause of Cancer. February, 1913.

3rd. Bacteria which cause the daisy tumor,* the tumor of the red oak and others. These are transplantable tumors and in their physical characteristics and final effect upon the host more nearly than any others correspond to the malignant tumor growths of animal life.

Turning now to a study of the natural history of tumors of animal life, what do we find? MORBID GROWTHS WHICH WE CALL CANCER, EXHIBITING ANALOGOUS QUALITIES, CHARACTERISTICS AND HABITS TO THESE WHICH WE HAFE SEEN IN PLANT LIFE. THESE ANALOGOUS MORBID GROWTHS OF PLANT LIFE WE KNOW—HAVE DEMONSTRATED BEYOND QUESTION—ARE CAUSED BY PARASITIC INFECTION OF ONE KIND AND ANOTHER. Is it not, therefore, the most reasonable conclusion that some form of microscopic parasitic life is the primary exciting cause of cancer in the human family? According to all light we have thus far gained, however, this parasitic agency must be ultra-microscopic, for the most painstaking search of many laboratory workers extending over many years of time have failed to show a cancer parasite which the world of science has been willing to accept as such. Further evidence of an ultra-microscopic cancer parasite is before us in the filterable virus of Rous. He obtained a filtrate from an emulsion of a chicken cancer through a filter so fine that all known bacteria fail to pass. This filtrate when injected to a healthy chicken produced cancer identical with the original. After subjecting the filtrate to a sterilizing heat it failed to reproduce.

Let us study further the natural history of human cancer. It is universally accepted that it begins in epithelial and connective tissue only. It is well known that epithelial overgrowths (papillomata) and connective tissue overgrowths (fibromata) often occur and remain *in statu quo* for an indefinite time—years, may be. Suddenly the papilloma or the fibroma takes on new activity; there is enormously rapid multiplication of cells, encroachment upon surrounding tissues and exhibiting all the phenomena of malignancy. Reasoning from analogy is it not the only rational conclusion which we can draw, that some form of parasitic ultra-microscopic organism has become implanted there and has set going an entirely new and atypical mode of life for epithelial and connective tissue cells? These immutable laws of Nature governing cell life do not change by chance. The change from an epithelial or connective tissue cell into a "cancer cell" is no more a matter of chance than the change of an ovum cell into a fetus. The one results in a disorderly destructive pathologic process; the other an orderly constructive physiological process.*

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* Tree Cancer. *Boston Medical and Surgical Journal.* August 17, 1911

That human cancer is a transplantable disease needs no argument, for it transplants itself within the limits of the same individual with the utmost facility. It does not remain long in its original focus before a new center becomes established in some outlying part;—contact transplantation is common knowledge.* Whether it is easily transplantable from one individual to another, we are still in doubt because of the ethical obstacles to such experimental investigation; but, from what has been learned of the transplantability of mouse and chicken tumors, the weight of evidence would lead to a positive conclusion, although the universality of transplantability may still be questioned because of assumed variation in susceptibility.

Cancer is an endemic disease. No history of anything which can be called an epidemic of cancer has ever been known. Its history in this respect corresponds to other microbic diseases of an endemic character. It is strikingly, in this respect, like tuberculosis, the active principle of which, it is now universally acknowledged, is always present and the resistance of the individual is the deciding equation in its incidence. All civilized communities and nations have endemic cancer varying from 60 to about 100 to the hundred thousand. This routine of manifestation of the disease can be rationally accounted for in only one way, viz., a universally present and widely distributed cancer parasite and a prevailing and predominant resistance in the members of the human family.

The question of the chance transmissibility of cancer from one individual to another, as from a cancer infected patient to the attending physician or nurse, or to other members of the family, is one upon which we have but little positive evidence, but much circumstantial evidence. That it is quite within the bounds of reason that such transmission may occur is beyond question.

In a study of the natural history of cancer extending over a period of many years, the writer, as a consulting surgeon, has seen a very large number of cancer cases in conference with many physicians. Professional acquaintanceship with a considerable number of women physicians has resulted in a somewhat intimate knowledge of their practice and affairs. It has been a question in the writer's mind whether women patients, in the dire distress of mind and body common to cancer disease, often seek by preference the advice and sympathy of a physician of their own sex. It has been a further observation that women physicians as a rule give to such cases a most intimate and devoted service, often doing what ordinarily a nurse would do in addition to strictly professional medical service. It has been my painful privilege of advising a considerable number of women colleagues who have themselves been the subject of cancer. Has it been a mere fancy that most of these subjects have been imbued, yes, obsessed with the thought that her cancer was "caught" from some patient whom she had faithfully and devotedly attended through months of illness to the end?

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* Possible Factor in the Causation of Cancer. Surg. Obs. & Gynecol. February, 1913.

It may be argued that such facts as these are too inconclusive in their relation of cause and effect to be considered. Are they? In my professional career I am able to sum up a total professional acquaintanceship with more than 120 women physicians. Of these I have traced 14 who have had cancer. This is a percentage far in excess of the incidence in any other walk of life. It means that if the same condition existed among all people we should be confronted with a death list from cancer of over eleven thousand per 100,000 of the population, or about eleven per cent, instead of as at present two-tenths of one per cent. These cases have occurred all in the late period of life—in the cancer period—the time of lowered resistance to cancer.

If this be true, that cancer is a "catchable" disease, it may be argued that nurses should show a high percentage of incidence of cancer. This appears, however, not to be true and is plausibly accounted for by the fact that nurses rarely continue their work as nurse into the late period of life because of retirement through marriage or other causes. At any rate, for some reason we do not nowadays see old nurses about. What are the conclusions. No other class of people past middle life have so intimate relations with cancer cases as women physicians. No other class of human beings show such a large percentage of cancer. The only hypothesis which will reasonably account for this is that some living virus has passed from patient to physician.

In view of the cumulative evidence that some kind of a microorganism is the active cause of cancer, is it not high time that cancer cases should be isolated, and particularly all advanced and incurable cases in the stage of breaking down of cancer tissue and discharge should be cared for by young women or attendants still in the pre-cancer stage of life?

Many cancer cases get well; a very few apparently* spontaneously and some by surgical removal, and many in the early stages by devious measures, such as destruction by caustic applications and pastes and the local use of arsenic, x-ray applications and radium. All these methods of treatment are empirical,—have been stumbled upon, as far as the writer can learn. No analysis has been made looking to a reasonable explanation. Why do epithelial cells which have taken on the disorderly mode of life we call cancer, return to an orderly mode of life after the area involved has been treated for a brief time with a mild solution of arsenic,—mild enough that the epithelial cells are not killed, but something else apparently is killed; for the cancer process stops and the affected area smooths off and becomes normal†. The opportunity has happened to fall to the writer to observe some cases of mammary carcinoma which have been the subject of treatment by "cancer specialists" with arsenical cancer pastes. The primary immediate effect of such treatment is the destruction of the localized cancer mass. Coincident with this, profound systemic evidence of arsenical poisoning has been seen. The impressive thing about some of these cases has been that secondary nodes, already apparent in the axillary space, have disappeared and recovery has followed with immunity from the disease quite as satisfactory as could be wished.

It is surely a most reosonable hypothesis that the same parasitical property of arsenic, so universally known, has killed some parasitic form of life which had got a foothold among or within the epithelial cells. The wide employment of solutions and powders of arsenic as an economic agent in agriculture and in the arts and industries as a potent—if not the most potent—destroyer of insect and bacteria life, is too familiar knowledge to need further comment.

The corrective action of the x-ray and radium upon superficial cancer is also explainable in the same way. The tremendous potentiality for destruction of cell life by these agents is a deplorable chapter in the history of their early exploitation. The miraculous power of the x-ray, even in mild dosage, in totally destroying ovulation and the function of the testes is suggestive of a widely varying resistance in different forms of cell life. The curative influence of the x-ray and radium upon cancer is plausibly explained by their probably destructive action upon a less resistant cancer parasite. We know at least that repeated mild dosage of this agent often cures superficial cancer without visible destruction of any normal tissue cells.

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* See Researches by Gaylord, Mackay & Packard.

† See Mitchell's Method of Cancer Treatment.

A stumbling block to the acceptance of this theory seems to appear in the fact that the early workers with the x-ray suffered much destruction of tissue about the hands and fingers, x-ray burns. In some of these unfortunate cases, cancer developed. To the writer this does not seem such an inexplicable occurrence. The x-ray effect, in dosage short of destructive action, is indisputably an ageing influence upon both plant life and animal life. The early x-ray workers who, in ignorance of the potency of the agent with which they were working, exposed their bodies indiscriminately to it were quickly changed to old men. The man of 20 or 30 was changed in a few weeks or months to a man of 60. In other words, they were changed in a brief time from the pre-cancer age to the cancer age. What more natural sequence could follow than that, upon the hands or fingers which had been aged almost to the point of death, the elusive but everywhere present cancer parasite should find favorable soil?

"Irritation" has been thought about and talked about and written about as a possible cause of cancer. Naturally this would be so because we have records of cases without number of "pipe cancer" of the lower lip, cancer of the lacerated cervix, cancer which develops in the lupus scar, "buyo cheek cancer" of India and the cancer of the chimney sweeps of England. These are all instances where the tissues have been changed into an abnormal state by more or less continuously acting foreign agencies. In every instance by mechanical, chemical, thermal or pathological agencies the normal tissue has suffered more or less destruction or abuse. All along the line of plant and animal tissues such influence weakens those tissues, lessens their resistance. It seems the most plausible and reasonable conclusion that among other known microorganisms which are constantly or exceptionally found implanted among or within such injured and weakened cells—staphylococci, streptococci, tubercle, actinomycosis—that a cancer-producing microorganism also gets implanted there, and under favoring conditions brings about this change which we call cancer. It is an accepted law in all branches of science, that the same causes acting under the same conditions bring about like results. In these cases of pipe cancer, buyo check cancer, kangri skin cancer, and chimney sweeps' cancer, the apparent causes are all different; in one it is a clay pipe stem, another a quid of betel nut and lime, another chimney soot, but the results are all the same. We must therefore change our view point and conclude that the pipe stem, the betel nut and the kangri stove have been only incidental in the history of these cancer cases. It is not a rational thought in the light of our present knowledge that "irritation" alone ever did or ever could cause cancer.

A well known occasional late development in advanced mammary carcinoma is "cancer en cuirass." Who can watch its beginning at a focus in the mammary integument where an underlying carcinomatous tumor has approached the surface, and see its slow peripheral progress without positive conviction that one cause and one alone can bring about such a phenomenon, viz., a parasite host advancing just as we see parasitic invasion in other environments? In its main features it is not at all unlike the spread of erysipelas, or scabies, or lupus.

Hondley's interesting work in this line* consisted in taking radiating strips of mammary skin extending from the focus of the cancer centrifugally through the diseased area into the healthy skin and making serial sections. We have been accustomed to think of "cancer cells" in some way detaching themselves from the parent growth and being swept along the lymph channels to be stopped at some lymph gland and there establish a new focus. This is undoubtedly true, but Handley shows us that there is an aggressive activity quite in contrast to the passive dissemination above referred to which he terms the "permeation theory." After reference to isolated secondary nodes near the original growth, an almost undetectable network of fibrosed lymphatics marking the area over which the devastating process has swept, a narrow and elusive zone a few millimetres wide where the lymphatics were choken with cancer cells beyond which the tissues were normal, he says, "Cancer then must be conceived of as a gigantic ringworm of permeated lymphatics situated in the plane of the deep fascia." This spontaneous expression of comparison by Handley seems significant and appropriate.

Enough cases of sarcoma have now recovered as a direct result of the Coley toxin treatment to establish it as a method worthy of trial in suitable cases of sarcoma. If an attempt be made to analyze the *modus operandi* of this treatment, we fall back at once to an antagonizing influence, or an anti-bacterial influence or an anti-parasitic influence toward a living something which is producing and perpetuating the sarcoma. The toxin may be carried by the blood to the sarcoma and kill the sarcoma-producing organism, or the high temperature which accompanies the treatment may be the factor which brings about a cure. At any rate it seems so similar in its mode of action to toxins now widely used with good results in many known microbic diseases that the most rational explanation seems that herewith set forth.

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* Surgery, Gynecolgy and Obstetrics. January, 1915.

A high degree of heat, the cautery, has long been a last resort treatment for various phases of inoperable cancer. Percy of Galesburg, Ill., tells us that a degree of heat, (about 120°F) far less than that required for actual destruction of tissue and applied for a prolonged period—one half to three-quarters of an hour—is far more efficient in checking the progress of cancer than by the old method. This is directly in line with all the other foregoing facts in the natural history of cancer and particularly with the laboratory findings of Rous on sterilization of his filterable virus by a heat of 110°F.

Convincing Evidence That Mineral Starvation is a Predisposing Cause of Cancer.

Of circumstantial evidence that the mineral content of the food of animal life is vital to that life in its very beginning as well as its continuity, there is abundance. Of evidence that a full complement of organic food salts is necessary in animal life for maintenance of resistance to microbic invasion, there is much cumulative material which has not yet been fully formulated.

All along the line we receive reports that cancer is *increasing*. If this be true it means that the resistance to cancer in the human family is *decreasing*. An effect is unimaginable without a cause. Assuming that the arguments heretofore set forth in this paper relating to a parasite as the active cause of cancer are sound, we are confronted by the large question as to what cause is operating in the human family to lessen its resistance to cancer. A natural resistance there must be, else the whole human family would be swept away. The question has been dealt with *in extenso* in a previous article, entitled "Demineralized Food and Cancer."* It is now several years since the writer first laid before his medical confreres the theory of a causative relation between diet and cancer. In the main, the views then set forth were received in respectful silence. That the doctrines therein exposed have not passed unnoticed is evidenced by the fact that in no decade in the past century has there been such reversion back to natural vs. denatured cereal foods as we have witnessing now. Milling interests are vying with each other in placing before the public "genuine" whole wheat, whole corn, and whole rice products. This means, reduced to its plainest terms, that the public is demanding them. In the early period of the propaganda for a more rational dietary there was not a genuine whole wheat flour in the market and whole rice was absolutely impossible to obtain outside the bird food supply shops. Now all grocers are stocked with them and all public bakers offer whole wheat bread. It is evident therefore that "the leaven is working," and if the theory put forth several years ago is correct we should by this time be seeing results.

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* Demineralized Food and Cancer. *Boston Med. and Surg. Journal,* March 21, 1912.

For ten years the writer has tried to establish an after treatment for all cancer cases. The efficiency of this must and does depend very largely upon the intelligence and faithfulness of the patient in carrying it out. The writer does not hold or claim any extravagant ideas or doctrines on this subject. Early destruction of the focus of cancer growth is as desirable and necessary as ever. The knife is still our most potent weapon supplemented by chemical agents, radium and the x-ray, but before and after and above all this, is the larger proposition of a prophylaxis looking to the prevention of cancer and the re-establishment of a normal resistance to cancer in individuals who are so unfortunate as to fall victims to that disease. Every ultimate cell of the animal body depends for its life, health, endurance, functional activity and resistance to disease upon the kind, quality, and quantity of food required by that cell to perform its physiological function. If phosphorus, iron, potassium, sodium, calcium, magnesium, silica, sulphur, or any of several mineral elements known to be essential to animal life and health be lacking, that cell is a weakling among the millions which make up the whole. Aboriculturists and forestry experts known all about these things as applied to tree growth and health. For example, a common disease among the white pines is the so-called "white scale," a fungus. It gets a foothold upon and destroys only those trees which are lacking in stamina and resistance. The lusty, well-nourished pine tree never gets it.

The earth is the only source of supply of the mineral elements and their compounds which make animal life and health possible. Plant life is the intermediary between supply and consumption. The chemistry of plant life as exhibited in its mysterious and intricate elaboration of food materials in cereals, fruits, and vegetables, reveals to us a subtlety of association of elemental substances which the human mind cannot comprehend nor science reproduce. Plant life is the only producer of vitamines.[*] The basic organic food roll is no longer protein, carbohydrates and fats, but protein, carbohydrates, fats and *vitamines.* There is one original source and one only of vitamines, viz., the pericarp of cereals and the pulp of fruits and vegetables. The vitamines of milk and eggs are secondary productions but probably none the less valuable because they have passed through animal metabolism in their transit from the vegetable world.

An analysis of what is happening in relation to the conservation of the vitamines of the staple foodstuffs of the world is illuminating :

White flour bread	Vitamines	absent
Potatoes (as ordinarily cooked)	"	"
White rice	"	"
Macaroni	"	"
Spaghetti	"	"
Samp and hulled corn	"	"
Hominy	"	"
Corn bread (from refined meal)	"	"
Refined sugar	"	"
Pasteurized milk	"	"
Farina	"	"
Cream of wheat	"	"

Here are enumerated twelve staple articles of food used largely and widely by civilized peoples, which are deficient or totally lacking in vitamines (food salts). This, reduced to plain terms, means that some of the ultimate cells of the body, probably millions of them each day of human life, fail to get the particles of iron, phosphorus, sulphur, sodium, potassium, or other mineral elements necessary to their life and integrity. It may be but the thousandth, millionth, or trillionth of a milligram, but without it the cell languishes and dies, or falls victim to some parasitic cell.

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[*] The recently coined word "vitamines" is here used to denote the as yet little understood subtle albuminoids which bear the food salts of vegetable life.

Cases of Cancer in Which the Disease has Apparently been Arrested.

The writer's early experience in the nutritional treatment of cancer was mainly upon cases rather far advanced to expect very much and was undertaken at a somewhat remote time after primary operation had been done for local removal of the disease; they were cases where recurrence had become firmly established. These cases I will not report in detail, except to say that many of them were so much improved in their general health, strength, and vigor that they lived on comfortably much beyond any cases which I had previously observed. It had been my practice for several years to place all my operated cancer cases upon an anticancer diet immediately, and keep them on it continuously as a prophylactic against recurrence. It is impossible to say in a convincing way to others just how much this course has contributed to prevention of return. The combined experiences of a large number of surgeons is necessary to establish or refute a question susceptible of so many variations and modifying conditions. In going over my comparatively small personal experience it seems to me that I have had far less recurrence than under former methods of after-treatment. In fact, as I look back upon early years of surgical work, it appears that in the majority of cases, after the surgeon's work was over and the patient discharged, as a rule nothing was done in the way of prophylaxis against further outbreak. I fear that is the still prevailing custom, that once the operation is over and the wound healed it is forgotten that we have turned adrift a patient who is still immune to cancer. She needs more than at any other time in her life, all means and resources to establish and maintain immunity.

The following reports of cases are presented not with claim that cure has been effected, but that the disease has apparently been arrested:

Mrs. H. came to me in October, 1913, reporting that she had been operated in April, 1913, for removal of a cancerous uterus. She had consulted her surgeon six months later, who informed her that the disease had recurred and her probable duration of life was about six months. Consultation with another surgeon yielded her the opinion that her span of life might possibly be a year, but that nothing further could be done.

Examination showed a recurrent mass at the vault of the vagina. It was sufficiently movable and circumscribed to encourage further operative measures. Combined vaginal and abdominal surgery effected a fairly satisfactory removal. She made good immediate recovery and was placed on the Anti-Cancer Diet. It is now three years and she is apparently as well as any woman could wish. Locally there is a small cicatricial-like induration which does not appreciably change. Is this a case of arrested cancer?

C. H., a boy of 14, was operated by a surgeon of national reputation for a tumor of the dorsal spine. Almost uncontrollable hemorrhage was encountered and the operation was abandoned. Examination of specimen of tissue removed showed the disease to be round-celled sarcoma. In the immediately subsequent week the case came under the writer's counsel and advice, principally to pass judgment on whether further surgical measures should be invoked. He then had incomplete pressure paralysis of the right leg, was bedridden, pale and emaciated. A rigid revision of diet was instituted and nothing else done. He has steadily improved, paralysis has disappeared and general condition totally changed for the better. He is now out and about the streets of his native village and to all appearance a normal human being. Is this a case of arrested cancer?

Mr. G., a hard working professional literary man and teacher, developed carcinoma of the penis. For some years the patient had been in the habit of going to early morning class work at six o'clock and taking no nutriment of any kind until the middle of the day. He neglected himself a long time until the disease had spread to the inguinal glands and scrotum. Extensive operation was then performed, including ablation of the entire penile structure, the whole scrotum and testicles and the inguinal glands of both sides. He appealed to the writer for after treatment. Four years have now elapsed. He is in vigorous health and no indication of recurrence of the disease. Is this a case of re-established resistance to cancer?

L. A. was operated, November, 1910, for a far advanced mammary carcinoma, the primary growth being located in the inner zone of the gland where the lymphatic drainage goes to the mediastinum. (In the writer's experience these cases exhibiting this particular location of the primary growth are particularly prone to interval recurrence in the mediastinal glands and liver). Seven years have now elapsed and the patient is well with no signs of recurrence. Is this a case of re-establishment of resistance to cancer?

A. S., a professional woman of forty, developed a carcinoma in a very unusual place, in the left side of the pelvis posterior to the descending colon and in such close proximity to the sacral plexus[*] that pressure symptoms were the first hint of the disease.

A portion of the tumor mass was a cyst-like space containing a blood-stained fluid. Operation was limited to exploration and removal of a piece for microscopical examination. It is at the present writing six months since the exploration. The pressure symptoms have entirely subsided. The patient is up and about, looks well and feels well. Locally, a bunch is still appreciable, but it exhibits absolutely no progressive activity. The time is too short to judge of the ultimate outcome, but may we not ask, is this a case of arrested cancer?

Miss G. H., age 60, was operated May, 1911, for well advanced mammary carcinoma. Three years went by with absolutely no suggestion of recurrence. At this time a sabbatical year was grante as a reward for long and faithful public service. She spent a part this in European travel and study. In November, 1912, on the eve of her departure, the writer made a careful examination and found no sign of recurrence. On her arrival in Europe she fell at once into the customary Continental dietary of a white roll and coffee for breakfast, not much of anything for lunch and the notoriously ill-balanced table d'hote dinner. In the following June, while still abroad, she began to feel ill and passed a wretched summer. On her return in August the writer saw her and found far advanced cancer of the liver.

Was this a case of arrested cancer, for the three years following operation with recurrence incident to lowered resistance subsequent upon change of living while abroad?

Conclusion.

1. Cases of seemingly hopeless cancer sometimes get well.
2. More cases show improvement with arrest of the disease under the Anti-Cancer Diet regime than by any other method of treatment.
3. Respite from recurrence after operation is much more satisfactory than by the "let alone" custom.—The *Journal of the American Institute of Homeopathy*, September, 1917.

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[*] Such unusual location of carcinoma is worthy of comment. Diagnosis was confirmed by laboratory examination.

The Homœopathic World, October, 1917, London.

The New England Medical Gazette, Boston.

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